THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

JUNE, 1878.

ON THE PATHOLOGY OF THE SO-CALLED PIG-TYPHOID.*

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THE most diverse opinions prevail as to the true nature of this disease; upon these I shall not comment at length. Many of the Continental pathologists class it with Anthrax, and in some of our English text-books it is treated under the same heading. The researches of Budd, in 1865, led him to the conclusion that it was a Typhoid Fever; those of Murchison, that it belonged rather to the dysenteric affections. The interest excited in the disease by these early investigators died away, to be awakened ten years after by a series of papers from the pen of Professor Axe, in which he substantiated and extended the views of Dr. Budd, stating that, etiologically, chemically, and pathologically, the disease was an exact counterpart of human Typhoid. Dr. Klein has more recently investigated the disease with special reference to this point, and has arrived at an opposite conclusion—holding that the so-called Pig-Typhoid has no analogy with the disease bearing this name in man.

* An abstract of this paper was read before the Pathological Society of New York, January 23rd, 1878.

Having, in the course of my reading, become acquainted with this unsettled state of the matter, I gladly, at Principal McEachran's suggestion, investigated a local epizoötic which had broken out near Quebec, in a drove of 300 hogs—hoping that, by a series of independent observations, the truth of one or the other of these views might be confirmed.

Etiology.

The highly contagious and infectious nature of this malady has been known for years—being first established, I believe, by Dr. Sutton, of Illinois. The following experiments, though limited in number, are, I think, worthy of record, as they confirm and extend those of Professor Axe and Dr. Klein.

Experiment I.

September 1st.—A sow pig, ten weeks old, was inoculated with lymph and blood obtained by squeezing a portion of ecchymosed skin from a diseased animal, and collecting the exudation on ivory points.

No change noticed until the 6th, when the animal did not appear so lively. Temp. $104\frac{2}{5}°$.

7th.—Place of inoculation has dried up. A diffuse subcutaneous redness exists over skin of belly, and certain of the hair follicles are swollen, papular, and surrounded by irregular but circumscribed zones of hyperæmia. These are best seen in the groins, where the general redness is not so marked. Temp. 105°.

9th.—Blush on abdomen not so vivid. Spots about hair follicles persist. Animal feeds well. Temp. $106\frac{4}{5}°$.

11th.—A few reddened papules on skin of abdomen. Hyperæmia has faded. Temp. $106\frac{2}{5}°$.

13th.—No change. Temp. 106°.

14th.—Skin looks harsh, and the hairs appear rougher than natural. Temp. $106\frac{2}{5}°$.

16th.—Eyes watery. Animal looks ill, but feeds well, and has no diarrhœa. Temp. $106\frac{4}{5}°$.

17th.—Back somewhat drawn up. Dirty secretion about the

eyelids. Skin of abdomen is of a dusky-red hue, and the papules about the hair follicles are again very distinct. A few ecchymoses about the back of ears. Temp. 105⅘°.

18th.—Skin of whole body of a deep dusky-red colour, brightest on the abdomen. It disappears on pressure, returning very slowly. Over the sternum and in the axillæ there are definite ecchymoses. Inguinal glands are swollen. Animal does not feed so well. No diarrhœa. Mucous membrane of rectum reddened. Temp., morning and evening, 102°.

19th.—Much the same. Temp., morning 104°, evening 105°.

20th.—Skin harsh. Eyes lustreless. Not so red. Ecchymoses have not extended. Temp., morning and evening, 105°.

21st.—Animal feeds better; redness much diminished. Temp., morning 104°, evening 103°.

22nd.—Inguinal glands still swollen. Temp. 104⅘°.

23rd.—Ecchymoses fading on belly, but still distinct behind the ears. No diarrhœa. Temp. 104

25th.—Animal has lost flesh, but is not much emaciated. Temp. 103°.

26th.—Temp. 106°. The extravasations are scarcely visible.

27th.—Temp. 104⅘°. Swellings of the inguinal glands not so marked.

28th.—Temp. 104°. Animal decidedly better. Feeds well.

29th.—Temp. 103⅖°.

30th.—Temp. 103⅗°. Is brighter; skin not so harsh, but on belly numerous dirty scales can be scraped off.

From this time the animal improved in every way, and appeared convalescent. On October 10th I inoculated it again with blood from Case V. (fed with diseased intestine). During the succeeding week I was so occupied that the animals were not visited. I then found this one febrile, temp. 106°, ecchymoses in ears, and suffering from diarrhœa. It became moderately emaciated; the fever kept up, though it was never high; and extravasations occurred about the thighs. It died on October 25th.

Post-mortem.—A few patches in cæcum and about valve, and half a dozen in the colon; some of the latter are excavated, with puckered infiltrated edges. Lungs unaffected.

Experiment II.

September 1st.—A ten-weeks-old sow pig was inoculated by scratching and rubbing in material obtained from an intestinal plaque of a diseased animal. Pulse immediately after the operation 100. Temp. 106°, with two thermometers.

Nothing unusual noticed at the daily visits, until the evening of the 6th, when the animal appeared less lively, and lay beneath the straw. A swelling has been gradually forming at the site of inoculation, and an inguinal gland in the neighbourhood is enlarged.

7th.—A faint, just perceptible redness exists on skin of belly and inner surfaces of front legs; in the latter situation are a few hyperæmic papules about the hair follicles. Temp. 105°.

9th.—Redness gone. No constitutional disturbance. Temp. $105\frac{1}{5}°$.

11th.—No change. Temp. 105°.

13th.—Hyperæmia gone. One or two papules in grooves and inner surfaces of legs. Temp. 106°.

14th.—Swelling at site of inoculation persists. Inguinal lymphatic glands enlarged on right side. Temp. 107°.

16th.—No change. Temp. 106°.

17th.—Does not look so ill as the other animal inoculated at the same time. No cutaneous affection; no diarrhœa; feeds well. Temp. $105\frac{4}{5}°$.

18th.—Temp. $102\frac{3}{5}°$; evening 103°.

19th.—Morning temp. $101\frac{3}{5}°$; evening 104°. Condition the same. Has become thin, but not so much so as the other animal.

20th.—Temp., morning 103°, evening 104°.

21st.—Temp., morning 104°, evening $103\frac{4}{5}°$.

22nd.—Morning temp. 102°. Does not look ill.

23rd.—Temp. $103\frac{2}{5}°$.

24th.—Temp. 103°.

25th.—Temp. 104°.

26th.—Temp. 105°. Anus slightly prolapsed, but mucous membrane not injected. No diarrhœa.

27th.—Temp. 104°.

28th.—Temp. 104°.

29th.—Temp. $103\frac{2}{5}°$

30th.—Temp. $103\frac{4}{5}°$.

From this time I considered the animal convalescent, though the symptoms were so slight that I had doubts whether it had been affected at all.

On October 10th, I inoculated it subcutaneously with blood taken from the inferior cava of animal the subject of Experiment V., and killed on that day. During the following week, I was so much occupied that I neglected to visit the pig-pen, and was considerably astonished on the 18th, when the keeper sent word that the animal was dead. He stated that it had become much worse since the inoculation. I found the animal with the cutaneous lesions well marked, and the intestinal disease well developed.

Post-mortem.—Extravasations on thighs, buttocks, and ears. Recent peritonitis, pericarditis, and pleurisy.

Lower half of left lung pneumonic. Bronchial glands much swollen. *Stomach:* at fundus there are from ten to fifteen small yellowish patches, the largest the size of a sixpence; all confined to the mucosa.

Entire mucous membrane of cæcum infiltrated. In colon numerous button-like masses, many of which extend through the entire thickness of the bowel. No signs of softening or ulceration in any of the patches. Mesenteric glands swollen, but not hæmorrhagic.

Experiment III.

September 10th.—Caseous matter from bronchial tubes of a fatal case, *in which there was no intestinal lesion*, rubbed up with saline solution ($\frac{3}{4}$ per cent.); of this m. xv. injected subcutaneously in the left flank.

13th.—Temp., morning 103°, evening $103\frac{2}{5}°$.

14th.—No change noticed. Temp., morning and evening, 104°.

15th.—Temp., morning $104\frac{2}{5}°$, evening $104\frac{3}{5}°$.

16th.—Site of injection is a little swollen. Temp., morning $104\frac{2}{5}°$, evening $104\frac{4}{5}°$.

17th.—Several distinct rose-coloured spots in right axilla, chiefly about hair follicles. Site of injection more swollen and hard. Temp., morning 106°, evening 105⅜°.

18th.—Other spots of hyperæmia on abdomen. They are about three lines in diameter, slightly elevated, and disappear on pressure. No general rash. Temp., morning 105°, evening 105⅝°.

19th.—Animal continues to feed well, but the skin and hair look rough. Temp., morning 109⅜°, evening 107⅝°.

20th.—No trace of any skin eruption; the small erythematous spots have faded. Temp., morning 105⅝°, evening 108°.

21st.—Site of injection remains hard. Temp., morning 107°, evening 106°.

22nd.—Eyes do not look so bright. Temp., morning 107⅜°, evening 107°.

23rd.—No diarrhœa. No rash. Temp., morning 107°, evening 107⅝°.

24th.—Not so well. Eyelids glued together with secretion. Temp., morning 109°, evening 108°.

25th.—Has diarrhœa. A muco-purulent discharge runs from the nose. A very faint rash exists over abdomen. Temp., morning 107°, evening 107⅜°.

26th.—Diarrhœa profuse. Extremities cold, and the nose blue. Rash scarcely perceptible. Temp., morning 107⅜°, evening 108⅛°.

27th.—Very weak, and considerably emaciated. Position when standing and general appearance very characteristic; back arched, and the hinder extremities seem almost unable to support the weight of the body. The gait is tottering. Diarrhœa very severe, and the keeper noticed a little blood in the discharges. Several large purpuric blotches on the hind-legs. No cough. Temp., morning 106⅝°, evening 106°.

28th.—Extremities cold and nose blue. Emaciation has increased. Extravasations have extended, and are seen on the front-legs as well. Site of injection still hard. Inguinal glands a little enlarged. Temp., morning 105°, evening 103°.

29th.—No change. Diarrhœa continues. Temp., morning 103⅛°, evening 106°.

30th.—No extension of the extravasation. Dr. Buller exa-

mined the eyes, and reports the retinæ healthy. Temp., morning 106$\frac{3}{5}$°, evening 106$\frac{4}{5}$°.

October 1st.—Very weak; can hardly stand. Diarrhœa very profuse. Temp. 104°.

2nd.—Appears completely exhausted. Nose quite blue, and extremities very dark. Temp. 102°. Died in the night.

Post-mortem.—Kidneys look natural. In greater curvature of the stomach there is a diphtheritic-looking area about 1$\frac{1}{2}$ in. in diameter, and near it some small patches of greyish-yellow infiltration. In the cæcum are several superficial plaques about the valve, one of which overlaps a patch of Peyer.

In the colon are twelve to fourteen isolated areas, involving only the mucosa, and showing no signs of separation.

Mesenteric glands swollen; some of them hæmorrhagic.

Experiment IV.

September 10th.—Mesenteric glands from diseased animal rubbed up with saline solution; m. xv. injected subcutaneously into right flank.

14th.—No change noticed. Temp. 103$\frac{4}{5}$°.

16th.—Temp. 105°.

17th.—A few rose-coloured spots noticed over sternum and epigastrium. No swelling at site of injection. Temp. 107°.

18th.—Nothing special noticeable except the hyperæmic spots on abdomen. Temp. 104$\frac{4}{5}$°.

19th.—Macula not so evident. Skin of ears congested. Temp., morning 109$\frac{2}{5}$°, evening 106$\frac{4}{5}$°.

20th.—No skin eruption visible. No swelling at site of injection. Temp., morning 106$\frac{1}{5}$°, evening 106°.

21st.—Animal feeds well. Temp., morning and evening, 106°.

22nd.—Temp. 107$\frac{1}{5}$°.

23rd.—No rash, but skin feels rougher than normal. Temp. 108°.

24th.—Is wasting, but continues to feed well. Temp. 107°.

25th.—Appears weaker, and has, for the first time, slight diarrhœa. Temp. 107$\frac{1}{5}$°.

26th.—Diarrhœa worse. Eyes look weak and the eyelids

are covered with secretion. Extremities cold. Nose blue. Temp. 107°.

27th.—A faint rash perceptible on abdomen, and four or five papules, dark in colour and hæmorrhagic, are seen just below the ensiform cartilage. Extravasations are also seen on the skin of the hind-legs. Diarrhœa continues. Temp., morning 105⅘°, evening 107°.

28th.—Condition the same. Temp., morning and evening, 106°.

29th.—Very weak. Ecchymoses have not extended. Ears purplish. Temp. 106°.

30th.—Emaciation more marked, and general appearance very characteristic. Temp. 105⅘°.

October 1st.—Very weak. Diarrhœa excessive. Skin rough and harsh. Temp. 104°.

2nd.—Respirations a little laboured, but no evidence of Pneumonia. Temp. 104°.

3rd.—Very feeble. Can scarcely stand up. Extravasations appear to have extended on the legs, and a few are visible on abdomen. Temp. 101°.

4th.—In a moribund condition. Died in the night.

Post-mortem.—Nothing abnormal noticed in heart, lungs, liver, spleen, and kidneys. In mucous membrane of cæcum and first two feet of colon, there are numerous ecchymoses. In the rectum they are submucous and more uniform, infiltrating even the muscular coat. About the ileo-cæcal valve are confluent plaques, which extend through all the coats and thicken the wall. In the colon the patches are small and button-like.

Mesenteric glands swollen, and present extravasations in cortical parts.

Experiment V.

September 10th. — Portions of two intestines, containing numerous plaques, were minced finely and fed to a sow pig ten weeks old. The feeding was done with as little violence as possible, and I do not think the mucous membrane was abraded in the act.

13th.—Temp. 103°.

14th.—Appears quite well. Temp. $104\frac{3}{5}°$.

15th.—Temp., morning $104\frac{3}{5}°$, evening 104°.

16th.—No change. Temp., morning 104°, evening $104\frac{3}{5}°$.

17th.—No rash. Temp. $105\frac{2}{5}°$.

18th.—Temp., morning $106\frac{1}{5}°$, evening $106\frac{3}{5}°$.

19th.—Has not fed so well, and begins to look ill. No trace of an eruption. Temp., morning 108°, evening 106°.

20th.—Fæces consistent, but a little bloody mucus noticed on the one which followed the introduction of the thermometer. Temp., morning $105\frac{4}{5}$, evening 106°.

21st.—Skin dry and harsh. Temp., morning $109\frac{4}{5}°$, evening $108\frac{1}{5}$.

22nd.—No rash. No diarrhœa. Temp., morning $102\frac{2}{5}°$, evening $104\frac{3}{5}°$.

23rd.—Temp., morning 106°, evening $106\frac{4}{5}°$.

24th.—Diarrhœa for the first time. Temp., morning 107,° evening $107\frac{4}{5}°$.

25th.—Diarrhœa continues, but is slight. No rash. Temp., morning 107°, evening $107\frac{4}{5}°$.

26th.—Is emaciated and weakened. The diarrhœa has been profuse. Temp. 108°.

27th.—Diarrhœa is better; stools soft but consistent. No ecchymoses. Temp., morning 110°, evening $108\frac{2}{5}°$.

28th.—Condition much the same. Is not nearly so weak as the other pigs. Temp., morning $107\frac{4}{5}°$, evening 107°.

29th.—Eyes are watery. Temp. 107°.

30th.—Diarrhœa is worse. Temp. $105\frac{4}{5}°$.

October 1st.—Emaciation more marked. No rash. Extremities and nose slightly cyanotic. Temp. 106°.

2nd.—Feeds tolerably well, and looks much better than the animals inoculated on the same day.

3rd.—Gait staggering, and general appearance characteristic. Temp. 104°.

The animal remained in this condition, getting neither better nor worse, until the 10th, when it was bled to death. The extremities and ears were purplish, but not distinctly ecchymotic.

Post-mortem.—Heart, lungs, spleen, liver, and kidneys, present no apparent changes. *In cæcum* are a dozen or more circular

patches, slightly depressed below the level of the mucous membrane. The surface is uniform, and they do not look as if sloughs had separated from them. For an inch about the valve, the mucosa is infiltrated with this greyish-yellow material. On the cæcal lip of the valve are eight or ten miliary elevations with translucent centres, looking like small lymph follicles.

In the first foot of the colon are six irregular depressed plaques, which appear to be healing: in some there is a distinct line of demarcation between the patch and the mucosa; in others this is not marked, but the mucous membrane is apparently encroaching on the plaques. In the rest of the colon the patches are numerous, and in many of them a central slough is separating. There is no congestion of the mucous membrane.

That the contagion exists in the serum of the skin had been shown by Professor Axe, and verified by Dr. Klein, who had also induced the disease by inoculation with material from the intestines. He had not succeeded in producing the disease with the juice of lymphatic glands, as has been successfully done in Experiment IV. of our cases. In his experiment of feeding an animal with the diseased intestines, infection followed; but he explains it by supposing that the morbid matter gained entrance to the blood through scratches in the mouth. In Experiment III., above given, infection also followed: and I think there is sufficient ground for believing that the disease was induced by the absorption of the *materies morbi* from the intestinal tract, for the experiment was very carefully performed, with the express view of avoiding possible abrasion of the mucous membrane of the mouth. Lastly, the successful experiment with the caseous matter from the bronchial tubes demonstrates, for the first time, that the contagion is also contained in the lungs, and shows us one fruitful source of contamination, not only in the expired breath, but also in the mucus so frequently coughed up.

In this connexion I would refer to some admirable papers by Professor Claypole, of Antioch College, Ohio, published in the *Western Farmer*, Ohio; in which the infectious and contagious nature of the malady is abundantly proved. These are of special value, insomuch as an opinion prevails among many in the Western States that the disease is not communicable.

Symptoms.

These have already been so fully described by other writers, that I shall refer to one or two points only. In the first place, the temperature range is exceedingly irregular. The relation between the morning and evening temperature is not at all constant, and very generally there was a morning exacerbation and evening fall. In comparing the charts of the five cases, there is an entire absence of the typical curves of human Typhoid. Secondly, the cutaneous eruption in this epizoötic was not so marked as in some which have been recorded. The ecchymoses were present in all the cases, with but one exception. These, however, though forming by far the most striking cutaneous lesions, are not regarded by Professor Axe as constituting the typical and characteristic eruption, which he states to consist in "small round raised spots of a faintly red colour." Such were certainly present in four of the five animals experimented upon, but I could not find them in a large number examined at Quebec in all stages of the disease; and I should like additional experience before concurring in the opinion that they constitute the specific eruption of this Fever.

And, thirdly, diarrhœa cannot be regarded as a constant symptom, for in more than half the cases examined the intestines contained consistent, sometimes hard, fæces.

Pathology.

The following is a summary of the pathological changes found in the nineteen cases which I have examined.

Skin.—In the majority of the animals definite changes were found in this structure. In the first place, the hairs had a rougher look and harsher feel than normally. The epidermis was frequently loosened in the form of fine scales. In four of the animals experimented upon, hyperæmia of the skin existed as a diffuse erythematous redness, which was in two instances general, in the others localized on the belly. During the second week there was, on four of these animals, an eruption of rose-coloured spots upon the abdomen and inner surfaces of the extremities. Some of these spots were flattened, slightly raised,

circular, about two to three lines in diameter, and disappeared on pressure; others were more pointed and papular in character, surrounding hair follicles, and situated upon hyperæmic bases. Not more than half a dozen of these were noticed on each animal, and it was only by careful inspection that they could be discovered.

In two instances scabs were formed, from beneath which pus exuded. The extravasations of blood into the skin, which form so remarkable a feature of the disease, were present to a greater or less degree in eighteen of the cases. Judging from the reports of other epizoöties, I am inclined to think that the cutaneous affection was slighter than usual. The extravasations most commonly occurred about the abdomen and flanks, the inner surface of the legs, about the hocks, and the ears. They varied from small punctiform and petechial hæmorrhages up to extensive areas of infiltration, giving to the skin a uniformly deep-red or purplish-red colour, upon which the impression of the finger made no difference whatever. In several instances the whole skin was covered with irregular blotches, and on cutting in these areas it was seen that the hæmorrhages lay chiefly in the corium, though often in the subcutaneous tissue. The ears were perhaps most frequently involved in this process, presenting a deep purple colour. In none of the cases was the skin much swollen, nor in any of the forty or more diseased animals which I saw were there any of the local patches of gangrene or necrosis described by some authors.

Pharynx.—In one case there was extensive diphtheria of the nasal passages, pharynx, and larynx; and in another case there were ulcers on the mucous membrane of the cheeks and lips.

Stomach.—In nearly every instance this organ contained food. As a rule, the mucosa was pale; and in three cases plaques or patches similar to those found in the intestines were met with.

Intestines.—In fifteen out of the nineteen cases the intestines were affected; in three they were apparently healthy; while in one the mucous membrane was ecchymotic. In two only of the nineteen cases did the small intestines present evidence of disease, consisting in a slight degree of diphtheretic-like exudation on the mucous membrane,—once in the ileum and once in the

duodenum. The mucous membrane was occasionally congested in places. Peyer's glands looked healthy. The large intestine is the seat of the peculiar anatomical lesions of the disease, and these we shall briefly proceed to describe. The mucous membrane is sometimes congested; but this was found to be a most variable character, for frequently, even when extensively affected, the mucosa itself was pale, though the large vessels in the submucous tissue were usually full. Extravasations occurred in five or six instances; in Cases 5 and 17 they were remarkably abundant. In the former the colon presented a dark colour, from the presence of extravasation in the submucous coat, while the whole thickness and extent of the rectum was infiltrated with blood. In Case 17 the same condition of the rectum was found.

The specific intestinal affection consists in an infiltration of the mucous membrane, either in localized spots or extensive areas, and the production thereby of larger or smaller patches of necrosis, which may assume very varied forms, and in time separate, leaving definite ulcers. I will group together the different appearances which the lesions presented:—

1. A brownish-yellow infiltrate, very like diphtheritic membrane, involving only the superficial layers of the mucosa, but frequently very extensive. This form was met with in five or six of the cases, chiefly along the ridges of the cæcum and colon. On section, it extends for a couple of lines into the mucosa, and cannot be separated without removing portions of that membrane.

2. Small greyish elevated spots, ranging in size from a pin's head to a split pea, seated directly upon, and involving the mucosa to a variable depth; frequently the edges of the projecting spots overlap the mucous membrane. Others, older perhaps, are seen in process of separation, as small central sloughs, divided by narrow grooves from the mucosa, which may even be elevated about them.

3. Patches ranging in size from that of a threepenny-bit to a penny or larger, circular, flattened, intimately adherent to the mucosa, yellowish-grey in colour, sometimes dark in the centre, and usually presenting a concentric arrangement, resembling a

flattened-out rupia crust, or the cross section of a calculus. Sometimes these plaques are ovoid, and frequently two or three have coalesced. Their concentric arrangement is their most peculiar feature, and is best marked in the larger ones, where a central spot can often be seen from which the process appears to have extended in zones. Some of the smaller ones differ from these, the surface being uniform and more prominent. On section, the patches show a yellowish-white colour throughout, and involve the coats of the bowel to a variable depth; some being confined to the upper part of the mucosa, others extending through its whole thickness; while others, again, involve the submucosa and muscular coats. They are firm and tenacious, not friable, resisting the scraping of a knife better than the mucous membrane itself.

4. Uniform involvement of large areas of the intestine converting the mucous surface into a yellowish irregular structure, like wash-leather, and in some instances extending through all the coats to the peritoneum, rendering the wall thick and inflexible.

5. In two cases most peculiar masses were met with in the colon, looking like warty excrescences, springing from the mucosa; they are oval, and lie transversely to the axis of the gut, encircling about three-fourths of the tube, and projecting from ½ in. to 1 in. into the lumen. In the transverse direction they present a rounded concavity, while in the long axis of the bowel they are convex; the surface is dark or yellow-brown, and sometimes shows concentric lines. On section a firm greyish-yellow structure is disclosed, very dense, and involving all the coats to the peritoneum, which is puckered and retracted over the site of the attachment. One of these measured nearly 1¼ in. in thickness, and materially narrowed the calibre of the intestine.

Now all these lesions, though apparently different, are simply modifications of one and the same process. Between the first four, patches intermediate in character were met with, and in a larger experience I have no doubt connecting forms between three and five could be found.

Two facts are very remarkable about the condition of the

intestinal lesions. 1. The absence of ulceration in most of the cases; and—2. The very slight hyperæmia or injection of the mucous membrane about the plaques. Not more than four or five distinct *ulcers—i.e.*, breaches or loss of substance in the mucosa—were met with altogether. In the few instances when the crusts, as they have appropriately been called, have separated, the bases and edges of the ulcers are formed by greyish infiltrated tissue. Nothing exactly corresponding to these appearances is met with in human pathology; the condition which most nearly resembles it occurs in the severer forms of dysentery; and a short time ago, in a case of Pneumonia, I met with isolated rupia-like masses, infiltrated and projecting from the membrane of the colon, which somewhat resembled certain of these plaques.

Occasionally the solitary glands of Peyer, in the large bowel, were found swollen and distinct. In several instances numerous small elevated bodies, ranging in size from a pin's head to a split pea, were seen, usually with a small central depression and orifice. These closely resembled solitary glands, and, indeed, without microscopic examination, could not, I think, be distinguished from them. However, as will be subsequently stated they have nothing to do with the glands of Peyer.

Histological Examination.

Fresh portions from a small intestinal plaque teazed up in saline solution, show a finely granular stroma and numerous small cells, irregular in outline, solid, looking like fine nuclei, and about one-third the diameter of white blood-corpuscles. In thicker and older masses little can be seen but a granular débris, in which here and there the shrunken remains of corpuscles are noted. A study of sections of small areas the size of pin's heads, where the affection is beginning, shows that the process is confined to the mucosa. In the earliest stage at which I have been able to trace it, the crypts of Lieberkühn are filled with loosened epithelium, among which small corpuscles somewhat frequently occur. How the latter originate—whether from the epithelium or from the nuclei of the walls of the follicles—I cannot say, but in the next stage they form the predominant elements in

the section. The affected area appears infiltrated with small round lymphoid corpuscles, closely aggregated, which destroy all traces of the normal constituents of the mucous membrane. The muscularis mucosa is also infiltrated, and its elements separated. The submucosa at the same time contains numerous leucocytes.

In larger areas, the size of buttons, it can be seen that the densely-packed corpuscles have undergone a change; their outlines are less distinct, or altogether lost, and the section presents a homogeneous granular appearance. In thin sections, towards the surface, a laminated condition can be seen, depending, apparently, on thin translucent bars traversing the matrix, very like those met with in croupous and diphtheritic membrane. Comparing the appearance with specimens in human pathology, it most resembles the firm caseous material of the central part of a syphiloma. All the greyish-yellow plaques present great uniformity in this respect. Fine hairs and particles of food are not uncommonly attached to the surface. The deeper parts of the masses present appearances which vary with the depth to which the disease has extended. When of any size, the submucosa is usually involved, and the mass is then densely adherent to the muscular coat, the inner fibres of which are infiltrated with the small corpuscles above referred to. In many instances the entire thickness of the gut is attacked, and converted into a firm, dry, non-vascular structure, on the peritoneal surface of which alone is there any cellular activity.

Bacteria and micrococci were occasionally met with, but not in situations or numbers to be of great pathological importance.* None were seen blocking blood or lymph vessels. Several masses were noticed in Lieberkühn's crypts; most abundant in one in which a hair was found, the root of which was surrounded by groups.

The peculiar structures like solitary glands, noticed in some cases, demand a passing word. They have nothing to do with these bodies, but are *involutions* of the crypts of Lieberkühn,

* See Dr. Klein's paper on this malady in the last number of the *Journal*, p. 349.—Ed. *V. J.*

forming saccular cavities, communicating with the exterior by a narrow orifice which is usually plugged. In sections the contents of the sac very frequently fall out. They are similar, apparently, to what Cornil described as mucous cysts in a case of dysentery; but Kelsch, quoted by Birch-Hirschfeld,* first gave the correct interpretation of the appearances. Klein gives an excellent account of them in his paper.

Lymphatic System.

In ten of the cases, the mesenteric and retro-peritoneal glands were enlarged and of a deep-purple colour, owing to extravasation, chiefly into the cortical regions. In many sections the entire gland structure was infiltrated with blood, presenting on section a deep plum colour. In six cases they were swollen and tumefied, but not congested. In three of the cases in which there was no intestinal affection, they appeared normal.

In all of the cases in which the lungs were diseased, the bronchial and sternal, often the lower cervical glands, were swollen and congested.

Lungs.—After the intestines, the lungs appear to suffer most severely. They were more or less affected in ten of the cases three of these being unaccompanied by any intestinal lesions. The disease is a Broncho-pneumonia, involving the air-cells and finer tubes, which become obstructed, owing to an enormous proliferation of the cells and exudation into the air-vesicles. In this way lobules are transformed into firm hepatized masses, and by the extension of the process whole lobes are affected. A peculiar feature in this Pneumonia, and one which gave an odd appearance to the sections, is the blocking up of the tubes in the inflamed areas with firm, perfectly white, cheesy-looking matter, composed of closely crowded corpuscles, which have either been pushed up from the air-cells, or have originated in the inflammation of the tubes. In nearly every instance these cheesy or caseous casts of the tubes could be squeezed out in the inflamed areas. Some of the lobules, owing to the great increase and over-crowding of cells, become pale, soft, and friable, either

* "Lehrbuch der pathologischen Anatomie," 1877.

being converted into a uniform cheesy mass, or breaking down into small abscesses.

Spleen.—No special affection of the spleen was noted, and it certainly exhibits in the pig a very different behaviour to that which we are accustomed to see displayed by this organ in the acute eruptive fevers of man. In only one instance was it swollen and enlarged—in the state commonly seen in Typhoid and other fevers, and described as acute splenic tumour.

Kidneys.—The kidneys also are but slightly affected. In most of the cases the cortical region was pale, owing to slight swelling of the tubules, but nothing was apparent microscopically beyond a granular condition in the epithelial cells.

In the pelvis ecchymoses were noticed in several instances.

Liver.—In Case 14 the liver was swollen, soft, dark in colour, the cells very granular and fatty. In the rest of the cases there was little or no evident change in this organ. It looked, in fact, remarkably healthy, and on examination the fatty infiltration of the cells was found normal.

Blood.—Repeated examinations of this fluid were made in all the animals experimented upon, but no definite changes were observed. The red corpuscles tended to aggregate together into irregular clumps. No increase in the colourless elements; no foreign constituents.

Conclusions.

I. The so-called Pig-Typhoid is a disease *sui generis*, presenting anatomical and clinical features distinct from any other affection.

II. It presents no analogies, either pathologically or clinically, with Typhoid Fever in man.

III. Neither has it any affinity with Anthrax, as claimed by some Continental writers.

IV. If we take the intestinal lesions as characteristic, the disease must be regarded, with Dr. Murchison, as dysenteric in its nature; although the cutaneous and pulmonary affections, as well as certain of the clinical features, meet with no parallel in human dysentery.

COMMINUTED FRACTURE OF THE TIBIA SUCCESSFULLY TREATED.

BY W. A. TAYLOR, F.R.C.V.S., MANCHESTER.

OSSEOUS fractures, particularly those occurring to the long bones of the extremities, are seldom treated in veterinary practice, owing to the difficulties met with, and which, up to the present time, are found to be in a large majority of cases insurmountable, from the difficulty in placing our patients in a position favourable for the development and proper completion of the reparative process; and also owing to the fact, that attempts to "set" the broken limbs of our equine and bovine patients are not often permanently successful. To these causes militating against a desire on the part of the practitioner to render surgical aid, may be added, to the owner, the serious item of expense incurred by treatment and keep.

In this instance, the subject was a mare pony, eight years of age, with foal at foot a fortnight old. On the 20th of June last, she received a kick from a carthorse on the off hind-leg, which completely broke the tibia. The fracture—a comminuted one—was located at about the superior portion of the lower third of the bone, and the leg from below the lesion was pendulous.

The pony was placed in slings, and the leg "set" as follows:—A coating of melted pitch, half an inch in thickness, extending and encircling the limb from the stifle to below the hock, was first applied. Immediately upon this fine-cut tow was dusted; then a strong linen bandage was firmly rolled round the limb, from a little below the stifle to the foot. Over the whole was placed a stout leather bandage, made to fasten with straps and buckles, in order that pressure might be regulated as desired. This appliance, however, extended only from the superior portion of the tibia to the hock.

On the 23rd of July, the bandages were taken off and re-applied as before, but not so tightly. The coating of pitch was not interfered with. There was at that time extensive tumefaction of the leg in the neighbourhood of the lesion, and union of the fractured extremities was demonstrated by the pony being able to place the foot upon the ground, and bear weight upon

the limb. From this period, and indeed from the commencement of the treatment, favourable progress was discernible; and at about the latter end of August the bandages were dispensed with, the pitch was left to crumble and fall off, and the pony was allowed its freedom in the loose-box. Afterwards, walking exercise was indulged in, and ultimately the patient was turned out to grass with her foal. Considerable atrophy of the muscles of the quarter, stiffness of gait, and dragging of the limb, were evident. The tumefaction in the vicinity of the fracture gradually decreased, and finally resolved itself into an osseous deposit on the inner aspect of the tibia, in size and form closely resembling the half of a pigeon's egg.

At the present time (April 1878) the limb is, with the exceptions of a bone-spavin on the hock, and the ossific deposit just alluded to, the exact counterpart of its fellow. In walking, the leg in question is flexed somewhat stiffly; but this soon passes off on causing the pony to trot, and is apparently due to the presence of the spavin, which is a large one. Proper medicinal and dietetic measures were, of course, resorted to. The pony is now undergoing daily work, and recently won a trotting match.

The success of the treatment was probably attributable, in a great measure, to the quiet disposition displayed throughout by the patient, rather than to any novelty in the method pursued.

INVERSION OF THE UTERUS IN A MARE.

BY J. WOODROFFE HILL, F.R.C.V.S., WOLVERHAMPTON.

ON the evening of April 12th, I was requested to attend a mare ill after foaling, belonging to Mr. Birch, of Hilton.—On my arrival I found the animal in a sad plight; she had foaled some two hours previously, and six weeks before due. The whole of the uterus was inverted and considerably lacerated. The patient was so excessively weak that it was with great difficulty she could be kept in a standing position; breathing hard, pulse almost imperceptible, eyes sunk, and visible mucous membrane highly injected.

I at once proceeded to return the uterus, by pushing it in from the centre to the extent of my arm's length; it was there maintained by one of the men, following my hand with his. I then withdrew my own, and commenced to work the other portions in bit by bit. In a few minutes we had returned the whole, but the patient strained so violently that we had great difficulty in preventing her expelling the uterus again. The man's arm was kept in until the straining ceased. I then plugged the vagina with cloths saturated with cold water, and administered four ounces of laudanum in half a pint of brandy, leaving a diffusible stimulant to be given every three hours in gruel.

On my visiting her the following day, I was agreeably surprised to find her lively, feeding, the pulse 45 and good, breathing normal, and, in fact, all inflammatory symptoms subsided. The cloths had been removed from the vagina, and no after straining took place. I enjoined good nursing and quietude, with laxative food, and made no other visit.

On the 17th I saw the owner, and was informed the mare had gone on well, and appeared quite herself.

I may mention there was no lacteal secretion, and the foal died a few days after birth.

THROMBOSIS OF ONE OF THE HEART'S AURICLES AND THE ILIAC VESSELS.

BY A. L. GIBSON, M.R.C.V.S., BIRMINGHAM.

TO-DAY (April 20th), I sent to the Brown Institution the most perfect fibrinous cast of the right auricle of the heart that I ever saw, together with the lumbar section of the spine of an animal which died yesterday. The subject was an aged French mare. On Tuesday last she was in a tram-car, and ascended a hill perfectly well, without turning a hair; but all at once she suddenly fell, and lost the use almost entirely of her hind-quarters and legs. She was carried to the stables, and the foreman gave her a couple of colic draughts, and then sent for me. I was in London; so my friend, Mr. Parker, kindly attended and administered a dose of physic, and applied some

stimulating liniment and hot blankets to the loins—leaving word if they thought her worse to let him know. I returned home very late, and, they not having sent again, concluded the animal must be going on all right; so I went on Wednesday morning, but found the patient still unable to rise, though struggling to do so. I administered some ol. lini. and terebinth, and a little more aloes, continuing the liniment and hot fomentations. The bowels responded most favourably, as did also the kidneys. She would drink gruel, eat a little steamed hay, and even a little bran; but for all that she seemed to be in continual pain, and when it became very severe she struggled very much. I then commenced giving hydrarg. chlorid., aloes Barb., g. opii, and nux vomica, to alleviate her sufferings, as I had no hope of her recovery. To make a long story short, she died on Friday afternoon, at 3.15. I made the *post-mortem* examination at 10 a.m. to-day. The stomach and bowels were natural, and contained ingesta in a nice softened condition; the kidneys were very healthy, as also were the liver and spleen, but congested a little. The lungs were both congested, and upon cutting into the heart I removed from the right auricle the fibrinous cast I have sent for inspection. The muscular structure of the heart was very pale and friable, and contained a lot of what I should call "tar" metaphorically—not *blood;* as did also all the vessels, especially in the lumbar region. There was a beautiful fibrinous cast of the iliac vessels, with moulds of every bifurcation; but while I was not observing, the butcher spoiled it. The whole lining membrane of the bloodvessels was nearly as black as the blood contained in the heart. A considerable amount of serum escaped upon dividing each vertebral articulation, in order to procure the section of the spinal cord sent, and the lining membrane of the canal and the coverings of the cord were highly injected. The whole of the muscular tissue was pale and friable. I should be glad of an opinion in this case, as it will be perceived that it appears to have only affected the larger vessels, and had not produced that effect on the smaller ramifications amongst the muscular tissues seen in Charbon. I am certainly at a loss to know what to call it. I told our people that she had died from acute congestion of the spinal cord, and

that effusion had taken place. So far I was right, but I cannot account for the intense pain exhibited, unless from some hyperæmic condition of the nerves and nerve-centres.

[The clot sent by Mr. Gibson weighed fourteen ounces, and must have filled the auricle, of which it formed a tolerably perfect cast, there being merely a groove on one side for the passage of the blood into the ventricle. It measured 6½ by 4¼ inches, and extending from it were branches into the anterior and posterior venæ cavæ; the clot from the posterior cava being 11 in. long, 1½ broad, and ⅝ths in thickness; that into the anterior cava measured two inches. In structure the clot showed the tendency to fibrillation observed in fibrinous deposits, and was roughened on the surface, as if adherent to the endocardium, a portion of which it would have been interesting to examine. The portion of spinal cord was so much decomposed that, after being in spirit for nine days, it could not be cut into sections.—W. DUGUID.]

THE "LOODIANA DISEASE" OR "MALIGNANT FEVER" OF INDIA.

BY GRIFFITH EVANS, M.D., VETERINARY SURGEON, ROYAL ARTILLERY, SEALKOTE, PUNJĀB, INDIA.

SINCE I sent my last communication on this subject to the *Veterinary Journal*, I have had another case of Loodiana Disease under observation, which is of special interest.

Those outside the profession seldom consider the difficulties veterinary surgeons have in the investigation of disease, owing to horses not being able to speak a human language, and to grooms not reporting at once when horses begin to be ill. It is very seldom we have a chance of seeing our patients in the earliest stages of disease. The later group of symptoms cannot always be interpreted until we are acquainted with the earlier; and the most observant groom cannot give us the information we need as to the earliest stages of diseases such as "Malignant Fever."

I was anxious to know, among other questions, whether the temperature of this disease in the earliest stages was higher than in the later stages. The cases I saw were far advanced before I could test the temperature; but it appeared that the temperature did rise towards the end. I could not tell whether the first wave had been higher than the last. I also wished to know how early in the development of the disease the worm-like bodies appear in the blood, and whether the worms or the pyrexia symptoms are first manifested. The case which I now publish shows, 1st, that the first wave of temperature may be higher than the last; 2nd, that pyrexia may make great progress before the worms appear in the blood; 3rd, that the worms do not appear all at once, but gradually increase in number; 4th, that those blood-worms may be found in the mucus of the lungs, free from blood.

Now, these are all very important items in this pathological investigation. I do not know whether these facts will prove uniform in future cases. I record them now as simple facts, for the benefit of other investigators. When we get a few more facts, and learn which are constant in the disease, perhaps we can venture to form a theory thereon.

CASE V.

No. 98, H. C., Royal Horse Artillery; "Waler" mare, aged nine years.

March 2nd, 1878.—At 12.45 (noon) this mare was brought to the infirmary, owing to her being off her feed. She walked steadily, looked lively; visible mucous membranes normal; fæces and urine normal; pulse 40, full and soft; respirations 18. Felt hot all over; temperature of rectum 108⅕°. Blood under the microscope normal; the red discs beautifully defined, forming *rouleaux*, and having no disposition to unite by their edges, or run into a jelly-like mass, as they did in the other cases. On making inquiry, I found she had fed well this morning, went out to exercise, and felt strong and active under the man; returned from exercise at 11 a.m., when she drank water as usual, and soon afterwards commenced to tremble all over. The "syce" did not report this until I asked about it, because

he thought it was the effect of drinking cold water, and it did not last long. There is not a single symptom present suggestive of "Malignant Fever," except the high temperature; but that seems enough. It is worthy of remark that, in cutting the skin for a drop of blood, she appeared to feel as much pain as most healthy horses would, and the blood flowed freely—very different in these respects from the other cases. Let her be picketed out apart from all other animals, and have as much cold water to drink as she will take, but no food and no medicine are to be given.

2.10 p.m.—Pulse 80, respirations 22. She is such a vicious kicker that the temperature of the rectum cannot be ascertained; it was with much difficulty obtained at the last report. The temperature of the mouth now is $106\frac{3}{5}^{\circ}$. Blood continues normal. Drank a bucketful of water.

4.30 p.m.—Pulse, respirations, and temperature of the mouth as at last report; but the blood is changed in this respect: there is now a very large proportion of small red corpuscles, many of them not half the normal size.

7.25 p.m.—Pulse 84, respirations 24, temperature of mouth $106\frac{3}{5}^{\circ}$. There is an increase of white corpuscles in the blood, and the red discs are more disposed to run into each other—jelly-like. There are no worms, nor anything likely to develop into a worm, in the drop of blood under observation. I have obtained a fair sample of the blood each time, and examined every drop thoroughly. I am positive the worms are absent.

9.30 p.m.—No change.

March 3rd. 7.15 a.m.—Pulse 97, weaker; respirations 27. Temperature cannot be obtained, because the mare will not keep the mouth closed long enough. She kicked both heels as high as my elbow when I attempted to test the rectum. There is nothing yet in the general appearance to indicate Malignant Fever. She does not look very dull; there is no swelling at the throat, and no discharge from the nose. But, in addition to the high temperature first reported, the blood is now characteristic. I find, however, only a very few of the worms,—only one or two can be seen in the fluid at once; and in passing the slide from side to side sometimes there will be no worm in

view. I do not think there were more than twenty in the drop of blood altogether.

9.30 a.m.—Pulse indistinct at the jaw, 112 at the heart. Respirations 40; temperature cannot be obtained.

10.5 a.m.—Lay down for the first time after coming in. Bowels act well to-day and yesterday; the urine also is said to be very high-coloured, but the "syce" failed to catch any for me to examine. Expression drooping.

10.15 a.m.—Got up again. She was quiet when down, and did not show any sign of pain in the bowels.

12.15 noon.—Blood: worms now swarming in every drop, and in every part of the slide. The blood-corpuscles behave as they did in the other cases. It is wonderful how the blood has altered since early morning. Pulse indistinct at the jaw. The temperature cannot be obtained. The gums and the margin of the tongue are blue; the mucous membrane of the eyes and nose of a dirty-red tinge. No swelling at the throat, no discharge from the nose. She flinches when the skin is pinched, and the blood flows from the wound more than it did in the other cases, but not so freely as it did in this case yesterday. She looks very dull now, and is restless.

1.15 p.m.—Failed again to obtain the temperature.

2.55 p.m.—Died. The farrier-sergeant came to me at 2.40 p.m., to say that a sudden change had come over the patient. She was "all in a tremble, and struggling to breathe." I was with her by 3 p.m., and found the temperature of the rectum to be $103\frac{3}{5}^{\circ}$ five minutes after death.

Autopsy, at 4.20 p.m.—Temperature of the rectum remained still at $103\frac{3}{5}^{\circ}$. Body well nourished. The peritoneum was of a pale red all over; there was a little more than the normal amount of serum in all the serous cavities, and red patches on the pleura costalis. The kidneys were congested, and imbedded in a large mass of jelly-like exudation; there was also a mass of similar exudation at the commencement of the colon. The spleen and liver were congested, also the mucous lining of the cæcum and colon. Patches of sub-endocardial exudation of black blood were present in both ventricles of the heart. Both lungs were congested; the bronchi of the right lung throughout

were choked with a red frothy mucus; this did not extend higher than the bifurcation of the trachea, and the bronchial tubes of the left lung were rather dry, the mucus in them was thick and viscid, and of a yellowish-white colour. The mucous membrane of the larynx was congested, but there was no exudation in the neck.

Microscopic Post-mortem Examination.—In the liver and kidneys I found a few blood-worms, but from ten to twenty times as long, and broad in a smaller proportion. The largest were in the liver. I failed to get any scrapings in these organs without some blood, and the blood everywhere had worms in it. These long worms had probably been conveyed to the liver and kidneys by the blood.

In the red frothy mucus of the right lung, there was of course much blood and blood-worms, but there were comparatively few of the coiled lung-worm I described in the last case. There were, however, many uncoiled worms, and also much broken up elastic fibre of the lung tissue, which I had not found in the previous case.

In the left lung I found the viscid mucus free from blood, but in it were imbedded dense masses of the blood-worms, as well as of the coiled lung-worms. They seemed to be in separate groups, but in each colony of blood-worms there were some coiled lung-worms, and likewise the colonies of lung-worms had some of the blood-worms among them. In this mucus, also, I found broken down elastic fibres.

On treating the mucus with liq. potassæ, I saw some of the lung-worms uncoiling and coiling again; their ends were abruptly tapering. I did not see any of the coils as large as I found them in the other case. Many of the blood-worms found in the mucus free from blood, became distinctly beaded within after treating with liq. potassæ. Many of them, also, had the disposition to unite to each other endwise.

[At the commencement of May, we received eight slides with dried blood, as well as some bronchial mucus in alcohol, from the horse alluded to above. These were sent to show the "blood-worms," the "coiled lung-worms," and "broken-up elastic lung-

tissue." A most careful microscopical examination was immediately made of the blood and mucus, but nothing whatever in the shape of "worms" could be detected in either of the fluids, though great patience was exercised in the search for them. But, strange to relate, myriads of the *Bacilli* peculiar to Anthrax were found in every drop of the fluid submitted to examination—some in the fructification stage. They were most numerous, perhaps, in the bronchial mucus, and in both fluids they offered exactly the same characters,—proving that in the blood they were not the *Bacilli* of putrefaction, as indeed their appearance unmistakably demonstrated. To corroborate the absence of "worms" and the presence of *Bacilli*, the blood and mucus were examined by Dr. Thin, one of the most competent micrographists in England, and Professor Duguid inspected the blood. Both agree in the result arrived at. We shall subject the blood to inoculation tests.]

GOITRE IN THE HORSE.

BY A. SPREULL, M.R.C.V.S., DUNDEE.

THE discussion which took place at the meeting of the Central Veterinary Medical Society, held on 7th February last, and which appeared in the *Veterinary Journal* for May, prompts me to send the following notes of a case which occurred in my practice here in October 1876, and which you are at liberty to publish, should you think them of sufficient interest.

The particulars of the case are as follows: In the latter part of the month of September, or the beginning of October of the year mentioned, I was requested by a gentleman in this neighbourhood to examine his chestnut carriage-mare, and let him know my opinion of an enlargement which had grown upon the "upper part of the windpipe." I accordingly did so, and at once came to the conclusion that she was the subject of Goitre, and that the tumour was in reality an enlargement of the thyroid gland.

I thereupon informed the owner of this fact, and having ascer-

tained from him that the tumour, though for years of little or no consequence, had of late been gradually enlarging, and more and more affecting the mare's respiration, by pressing upon the larynx and upper part of the trachea—thereby constricting the calibre of that tube, and obstructing the free passage of the air in its course to the lungs, I at once and unhesitatingly accompanied my statement with a recommendation for the excision of the diseased gland, notwithstanding the fact that it was already of such size as, from the mere force of its gravity, to hang down almost in the median line of the neck, while the superior surface or root extended upwards, and was deeply embedded under the terminal divisions of the carotid artery and jugular vein of the left side,—and here it was also most intimately and extensively attached to the muscular tissue of that region.

In consequence of the danger of the operation, consent was in the meantime withheld; but as time wore on, and the animal was gradually becoming worse, I was at last requested to perform the necessary operation.

Accordingly, on 20th October, I had the mare cast and laid upon her right side; and having got her properly secured, proceeded to make a longitudinal incision parallel to, and just alongside of, the median line, on the inferior aspect of the neck, and extending along the whole fundus of the tumour from above downwards; and thereafter carefully dissected it away from all its attachments. The portion most firmly attached being that in contact with the upper extremities of the sterno-thyro-hyoideus and sterno-maxillaris muscles, and as at this point it also stood in intimate relationship with the carotid artery and jugular vein, the utmost circumspection had to be observed in this portion of the work. So soon, however, as this part of the dissection had been got over, the difficulty at once vanished; as the finger and thumb nails easily separated all the other attachments, which seemed only to be composed of the cellular tissue surrounding the gland, and required nothing more than a little manipulation with the fingers to scoop it out of the bed of fascia, in which it was lodged.

This being successfully accomplished, the next thing calling for immediate attention was the arrest of a rather serious venous

hæmorrhage; and this was speedily effected by the substitution of a large pledget of tow, saturated in a weak solution of tinct. ferri perchlorid., for the tumour removed, and the wound was then sewn up with the continued suture. On the third day the pledget of tow was removed, and the stitches replaced in the skin, to keep it together; but by this time a very considerable amount of œdema had collected in front of the sternum and under the chest, having gravitated downwards to this situation from the seat of operation, and causing the owner a great deal of unnecessary anxiety. On the eighth day I again visited her, and found the œdema entirely gone, and the healing process so far advanced in the wound that I was surprised at the rapidity with which it had healed: in fact, it was so nearly whole that I did not consider it necessary to again visit her. After this date she progressed favourably, and in less than another week she was at work as well as ever she had been, and almost without a single trace of the operation having been performed.

The tumour itself was ovoid in form, rather more than two pounds in weight, and on making a section of it, it was found to be covered by a dense fibro-vascular sheath of a smooth glistening appearance, in which it was completely enveloped. The interior, which represented the original gland itself, was of a beautiful yellowish-white colour, and had every appearance of being composed entirely,or nearly so, of fat cells—with, however, a very delicate stroma or matrix of what appeared to be fibrous tissue, but which no doubt was the original structure of the gland, intersecting it in every direction between the interstices in which the fat globules were deposited, and giving, throughout the whole mass, the dense and firm, yet unctuous feel of a regular steatoma.

I regret that I did not examine it microscopically, as it might have been more satisfactory, and would no doubt have confirmed my opinion as to the exact nature of the deposit which had taken place therein, as above stated.

COMPLETE TORSION OF THE CERVIX UTERI (WITH CONSIDERABLE THICKENING AND DILATATION OF THE OS) OF A COW.

BY PROFESSOR WALLEY, ROYAL (DICK'S) VETERINARY COLLEGE, EDINBURGH.

Subject.—Small Danish cow, which had been landed from Copenhagen on the 7th, and purchased in Edinburgh by a Leith dairyman on the 8th of March. She travelled to Leith, and shortly after her arrival lay down—never after rising.

My attention was directed to her on the 13th of March. I was informed that since purchase she had eaten very sparingly—had, in fact, been supported mainly on gruel.

On external manipulation, I discovered that the uterus contained a very large fœtus; and suspecting that this had something to do with the paralysis, I made a vaginal exploration, which resulted in the detection of torsion of the cervix uteri. I was only able to pass two fingers, and that in a half spiral manner from left to right. Rectal exploration confirmed the diagnosis, and also revealed the further fact that great thickening of the cervix had taken place. As my patient was in a very exhausted condition, and as I had not sufficient assistance, I determined to delay operative interference for several hours, supporting her in the meantime with stimulants and gruel.

Deciding upon attempting reduction of the twist by version, or, failing this, by making an incision through the abdominal walls and introducing my hand into the abdomen, I proceeded, in the evening, with the aid of several students, to carry out my intention. The animal was turned twice completely over, from left to right (in the same direction as the twist), with the effect of nearly reducing it; but on proceeding to turn a third time, I discovered she was dying, death taking place in a few minutes afterwards. After death I had the body turned once more, when I found that the torsion was completely reduced, but that the os and cervix were thoroughly occluded by new material deposited in their structures.

Autopsy.—Unfortunately, I could not be present when the carcase was dressed; consequently, I only saw the uterus and its

contents after removal from the body, and was thus prevented from making any investigation as to the condition of the ligaments. The uterus contained a large, fully-developed fœtus, with placenta and uterine fluids; its coats were extensively thickened throughout, its bloodvessels engorged with coagulated blood, and its lymphatics with lymph: the seat of the torsion was indelibly marked by the blanched, compressed, and twisted condition of the structures of the involved parts. The cervix, anteriorly to the torsion, was thickened to the extent of several inches all round, the vaginal coats normal, and its large vessels empty; the large vessels of the uterus (arteries and veins) contained immense, firm thrombi. There had been no interference with the rectum, such as is usually seen in these cases, from involvement of the recto-uterine folds.

The cause of the lesion, or the length of time which it had been in existence, I had no means of determining; but from the thickened and indurated condition of the cervix uteri, I am of opinion that it must have been present for several weeks. Had the animal been strong, and the os and cervix uteri normal, I entertain no doubts as to the success of operative interference.

DIFFUSE SPERMATIC ANEURISM.

BY THE SAME.

Subject.—A Danish bull, rising three years old. My attention was directed to this animal by the enormous size of its scrotum. It was three times the normal bulk, and about eighteen inches in length.

On manipulation, I quickly discovered that I had to deal with aneurism of the left spermatic artery, although I had never seen or heard of such a case before, either in man or animals; indeed, I look upon it as unique in our list of aneurisms.

The skin of the scrotum was slightly reddened, increased in temperature, and attenuated; its surface on the left side was irregular (nodulated), the irregularities corresponding to the coils of the artery, which in several places was interruptedly dilated. On the application of slight pressure with the finger on the

surface of these elevations, a distinct purring thrill was detected; and, by auscultation, a humming *bruit.*

Pulsation in the artery was distinctly visible to the eye—the pulsations numbering 86 per minute, and synchronous with the heart's action. There was very slight fever, although the animal evinced signs of much pain by uneasy movements and abduction of the near leg, and by lameness in progression. He was in very fair condition.

The right testicle was normal; the left was considerably reduced in size, and its vaginal sac contained a small quantity of fluid, as detected by fluctuation: it was forced upwards and inwards by the pressure of the aneurism.

Immediately on the death of the animal, I removed the scrotum and testicles *en masse,* and as close to the abdomen as possible, when the mass very quickly shrank to half its original size, owing to the artery being emptied of its blood.

Careful examination of the abdominal portion of the artery showed that it was dilated up to its origin, but there was no evidence of cardiac or other vascular derangement in any other part of the body.

My colleague, Professor M'Fadyean, undertook the injection of the artery, in which he succeeded very well, the wax returning by the vein; subsequently, that gentleman assisted me in the dissection of the specimen.

The right testicle and bloodvessels were found normal, the left considerably atrophied and bent at an acute angle at the globus major, the globus minor being superiorly placed. No wax was discoverable in any of the vessels of the testicle itself—showing that they had been occluded by the malposition, and thus accounting for the atrophy. The vaginal sac contained two or three ounces of straw-coloured serum. The wax had passed into the spermatic vein, which was thoroughly injected. Slight hæmorrhage had taken place in the coats of the artery at the seat of one of the dilatations. When dried, the artery with the testicle weighed 27 oz. Allowing $1\frac{1}{2}$ or 2 oz. for dried structures, the quantity of wax contained in the artery would be 25 oz.

The enormous coils give the specimen a remarkable and interesting appearance.

Editorial.

THE NEW VETERINARY WARRANT FOR THE ARMY.

THE promulgation of the long-expected and anxiously-looked-for Warrant of the Army Veterinary Department, which we have great pleasure in publishing in the present issue of the *Journal*, must be a cause of congratulation to those members of the profession at present in the Service, and a source of satisfaction to those who contemplate entering it, as well as to the profession at large, which cannot but rejoice at every advance made in its welfare—even when this advance only directly operates to the advantage of a portion of its body. It is another proof that the profession is steadily gaining ground and obtaining recognition, not only from the public, but also from the Government of the country; and it will, we trust, be a great encouragement to those who are labouring to the utmost of their power for the proper and rapid development of our science.

For many years it has been felt that army veterinary surgeons were badly remunerated while on full pay, while their prospects on retirement were the reverse of bright or encouraging. Indeed, so unsatisfactory has been the pay and position of the profession in the Service, that it offered no inducement for suitable men to join, when the attractions and remuneration of civil practice were so tempting. Consequently, no candidates have offered themselves for a considerable period, and the Department, owing to deficiency in numbers, has been greatly overworked and inconvenienced; while it was far from being in such a state of efficiency as an impending war with a great European power requires.

The last Warrant, issued in 1859, did, no doubt, prove advantageous to army veterinary surgeons of that period, and much more so to the senior than the junior officers; but it was soon discovered—from reasons which we need not here mention—that it left room for uncertainty, dissatisfaction, and complaint. The new Warrant, just published, is an attempt to remove some of the grievances brought forward from time to time, and to offer an inducement to the most eligible graduates to join Her Majesty's army.

It is unnecessary to refer to the defects of the previous Warrant, or to compare it with that now introduced. We may therefore briefly notice the provisions of the latter, and make a few comments upon them as a whole; reserving to ourselves the right and the privilege—as representing the army as well as civilian veterinary surgeons—of future criticism of the Warrant, should occasion require it.

After a thorough examination of the candidates (who must not be more than twenty-six years of age), as to their moral, physical, and professional fitness for the Service, if successful, they will have to serve a probationary period not exceeding six months, in order still further to ascertain whether they are likely to be worthy of retention. If not suitable, then they will be dismissed; but if the probationary interval has been passed to the satisfaction of the authorities, the veterinary

officer will receive a commission for the limited period of ten years' service, with the relative rank of lieutenant and a salary of £250 per annum. In addition, he will be allowed forage, or a sum of money in lieu thereof; as well as free quarters, fuel and light, a servant, and other advantages of a minor character. Hitherto, in cavalry, the veterinary surgeon has had to pay 8½*d.* per day for each of his horses' forage; and this, together with the other heavy expenses incurred in this arm of the Service, have of late years rendered cavalry very unpopular to the veterinary surgeons. Now, however, that the Warrant sanctions free forage, one of the causes which made it the least sought-for branch will have been removed.

At the expiration of the ten years, should the veterinary officer desire to return to civil life, or should his services be no longer required by Government, he will receive a gratuity of £800.

With regard to the latter point, it will be observed that at paragraph 14 of the Warrant, the Principal Veterinary Surgeon of the army has the power of retaining in the Service four of the ten-year veterinary surgeons every year. At present, the number of annual admissions will be about six; while the casualties under ordinary circumstances—from voluntary retirements and other causes—would probably leave only four of these six at the end of ten years. So that, as a rule, it will be entirely the fault of the veterinary surgeon himself if he is not retained for further service; as Government will, undoubtedly, be desirous of keeping those of proved zeal and ability. If remaining for renewed service—a condition optional on both sides—the veterinary officer then comes on the scale of *daily pay* given in the Warrant; and on completing a total of twelve years' commendable service, he will be promoted to first-class rank.

Now, we have reason to believe that in the draft warrant submitted by the Principal Veterinary Surgeon, it was proposed that promotion to this grade should be given after ten years' service. This period, however, is extended to twelve years, and is a serious hardship to all those veterinary surgeons who entered the army on the faith of the Warrant of 1859, which stated that they were eligible for promotion to first-class after five years' service. Of course, this was taken by them, very naturally, to mean that the period would certainly not be exceeded by more than three or four years. Therefore these veterinary surgeons, and particularly those in India, find that the new Warrant operates injuriously on their pecuniary prospects. We are certain that it would relieve much heart-burning and disappointment if the authorities would give early and favourable consideration to the case of these gentlemen. Promotion at ten years would be fair and equitable, and it cannot be too much to ask for, when we know that medical officers obtain the same relative rank of captain at four years' less service—namely, six years. Hitherto, promotion to first-class has generally been given at about eight to ten years' service—though some unfortunates, for no fault of their own, have not received it for twelve or even more years.

We understand that veterinary officers who entered the Service prior to the publication of this Warrant, will remain regimental officers as hereto-

fore; and that those who may be retained after completing ten years' service, may also be gazetted to corps. This, we think, is a very wise and necessary measure; as, otherwise, veterinary surgeons, if merely attached to their regiments, would lose what has hitherto been a boon to them, and the deprivation of which, to medical officers, has constituted a serious grievance—they being no longer a part of their corps.

The conditions of retirement and rates of retiring allowance must also be considered, on the whole, satisfactory. The higher rate for Inspecting Veterinary Surgeon (a very much better designation than that of "Staff" conferred by the previous Warrant) shows a substantial increase of £109 10*s*. per annum over previous rates for home service. In India the pay amounts to about £1600 a year. The other grades are in proportion. We cannot understand, however, why the pay of the Head of the Department should be fixed at the meagre sum of £750 a year, inclusive of all allowances. It must be evident that such a salary is totally inadequate, when we consider the position of the Principal Veterinary Surgeon, the importance of his office, and the onerous and responsible duties he has to perform. We trust that the Government will not delay in increasing it to at least £1000 per annum, and thus make the post worthy of acceptance by those who have to fill it. At present the pay is below the amount received by the senior Inspecting Veterinary Surgeon.

It will also be noticed that retirement can be claimed after twenty years' service; and this is a concession which, if we mistake not, has long been clamoured for, and with good reason,—though we doubt if many will now take advantage of it.

Looking at the Warrant in its entirety, we incline to the opinion that its terms are fair and liberal, and that they are likely to attract some of the best and most promising graduates. The army offers advantages of a kind which civil practice does not—though we cannot overlook the fact that it has also its disadvantages; but, nevertheless, to those who desire to occupy a good position (especially if they have private means), are desirous of cultivating the higher branches of their science, and are bent on usefully employing an otherwise agreeable career, it is to be recommended.

True, army veterinary surgeons still labour under disabilities which will, we trust, soon be removed, as they are derogatory to the status of men of education and science, as well as to the position of officers holding Her Most Gracious Majesty's commission: such as their disqualification for presentation at Court—a privilege the youngest sub-lieutenants, as well as medical officers, enjoy; while good service pensions, awarded to every other class of officers, are also denied them.

But we may rest assured that the present head of the Department, to whose unceasing and strenuous exertions the new Warrant is due, and who well deserves the warmest thanks of the profession for bringing his efforts to a successful termination, will continue to agitate until these disqualifications and all invidious and most unmerited exceptions are abolished. The new Warrant may be imperfect in some things, and may not contain others which those whom it concerns would desire, and

to which they think they have a just claim; but it must be allowed that it at least goes a good way towards getting rid of well-founded complaints. If it be discovered that some of its provisions are unpopular to such an extent as to deprive the army of good men—for none other should be admitted—then no doubt alterations and modifications will be made. In these days, such Warrants are but temporary devices to secure the best men on the most advantageous terms for the country; and as economy—not always well-advised—is the ruling principle in framing them, circumstances are continually occurring which necessitate changes and improvements. Far too long an interval—nearly twenty years—has been allowed to elapse between the issue of the previous Warrant and the one we have been noticing. We venture to predict that another Warrant will not be so long in making its appearance, notwithstanding the marked benefits the present one confers.

THE MODE IN WHICH DEATH IS PRODUCED IN ANTHRAX.

THE result of the experiments undertaken recently have demonstrated that *Bacteridiæ* or *Bacilli* are the cause of Splenic Fever or Anthrax. Pasteur and Joubert have quite lately stated that the *Bacteridiæ* produce asphyxia by removing from the red globules of the blood the oxygen necessary for hæmotosis; and such was also the explanation given by Professor Toussaint, of the Toulouse Veterinary School, in a paper presented to the *Académie des Sciences de Paris*, by M. Bouley in August last. In another note, presented in December, Toussaint mentions that he had again occasion to study this disease, and his attention was then more particularly directed to the mechanism of death, or the mode of action of the *Bacteridiæ* introduced into the circulatory system. The results of his experiments on rabbits he gives in this note.

The blood which he used in his first experiment was obtained from a sheep which had died with all the symptoms, and the carcase of which had all the appearances, of *Sang de rate* (Splenic Apoplexy). The malady had been produced in this sheep by inoculating it with the blood derived from a diseased horse, which had died at Narbonne, at the same time as twelve of its stable companions, three mules, and a certain number of sheep.

The blood of the sheep, examined between seven and eight hours after death, contained a great quantity of variable-sized *Bacteridiæ*. The majority were already divided in their length, and they had a tendency to become reduced into germinating corpuscles. A rabbit was inoculated with this blood, and the creature died in fourteen hours.

In the succeeding experiments for inoculation he employed the blood of experimental animals which had recently perished. In general, these succumbed between the twenty-first and twenty-fourth hour after inoculation.

A knowledge of the almost exact period at which death took place was of great assistance to Toussaint in his observations, as it allowed him, after a few trials, to have the animals die during the day, and thus to render an examination of their bodies more easy.

The first object was to verify the hypothesis entertained as to death being due to asphyxia of the blood globules. For this purpose, a rabbit which was exhibiting serious symptoms was placed under a bell glass, the air of which was sufficiently charged with oxygen to rekindle an almost extinguished

match, and fresh quantities of oxygen were constantly introduced, an aspirator establishing a current in the glass. The animal placed in these conditions died in about half an hour, without any noticeable effect having been produced by the gaseous mixture. A second rabbit, not so ill, succumbed in about three-quarters of an hour; the only thing remarked was a showing of the respiratory movements, which fell from ninety to fifty per minute. In fact, respiring an atmosphere strongly charged with oxygen did not seem to Toussaint either to accelerate or delay a fatal result. Artificial respiration, practised on two other rabbits, did not yield any result.

After these experiments it appeared difficult to this investigator to accord to asphyxia, through deficiency of oxygen, so important a part as it recently had allotted to it; nevertheless, the symptoms observed in the inoculated rabbits were certainly those of slow asphyxia—they died in a state of coma, without the slightest convulsion.

The capillary system was then investigated; and a thin transparent membrane—such as the omentum or mesentery—was subjected to microscopical examination immediately after death. Extremely important lesions were noted. A large number of capillaries were filled with *Bacteridiæ;* in many of them the vessel was so obstructed by these particles that blood corpuscles could not be seen; often, even, the vessels were not discoverable save by the presence of the *Bacteridiæ*, which marked their course as if they had been injected. The arterioles themselves were obstructed by masses of *Bacteridiæ*, behind which the blood corpuscles were accumulated. An examination of other parts of the body led to the discovery of lesions of the same nature; the intestinal villi were found to be injected at their summit with a mixture of blood and *Bacteridiæ*, while very many of the capillaries at their base were entirely filled with these bodies. The bloodvessels of the brain were almost destitute of blood; the extremely fine capillaries contained but few *Bacteridiæ*, though they were in great numbers in the more voluminous vessels.

The most complete and by far the most important lesions were, however, found in the lungs. On opening the thoracic cavity, these organs were found to be incompletely collapsed; in a great number of points they were emphysematous; their colour was grey, and the air-vesicles and bronchi were full of foamy mucus. A small portion of lung being teazed out under the microscope, exhibited scarcely anything more at the first glance than a matting together (*feutrage*) of *Bacteridiæ*. On more attentively examining some non-effaced alveolx (those still containing air were not less instructive), Toussaint succeeded in isolating a layer of vessels, the limits of which were indicated by the *Bacteridiæ* that filled them. These rod-shaped bodies literally injected and crammed these vessels; they lay in every direction, and gave the capillary network quite a peculiar aspect; there were very few blood-corpuscles among them. A preparation of healthy lung being compared with this diseased portion rendered the lesion still more striking.

Toussaint is of opinion that the lesions above described are sufficient to account for death occurring. In the diseased rabbit there is almost complete obliteration of the pulmonary bloodvessels, and, consequently, great difficulty in the blood passing from the right side of the heart into the left. It is also remarked that when the chest of an inoculated animal, on which artificial respiration has been practised, is opened, the right side of the heart and the large venous trunks are found to be extremely distended, while the left side contracts in an almost empty condition. The arteries are contracted, and section of large vessel—as the radial artery—only yields an insignificant jet of blood; and the intercostal arteries often do not bleed at all,—opening the thoracic cavity is a bloodless operation. In fine, the right side of the heart is not emptied, and experiences a gradually increasing difficulty in contracting;

it ceases to contract long before the left side of the heart. Vascular emboli are, therefore, the immediate cause of death.

The formation of these emboli may be observed in the living rabbit. After fixing the creature, and withdrawing a portion of its omentum from the abdominal cavity, the circulation of the blood can be observed through this membrane, the transparency of which allows of the employment of any objective necessary. In this way one may observe for an hour or more a beautiful sight, which in this instance has an altogether special interest from the presence of the *Bacteridiæ*, and the formation of the lesions just described —the process of development of which the observer can follow with ease. The *Bacteridiæ* become retarded in the most eccentric loops of the capillaries, move on again, once more accumulate, and finally finish by remaining fixed altogether in the vessel, where their elongation may be watched on the spot. As the obstruction becomes complete, the circulation through the canal is slackened, and soon becomes impossible. Some time before death it is almost *nil* in the larger vessels of the mesentery. The viscidity of the blood corpuscles, which is readily observed, even in the vessels, should also contribute to increase the difficulty in maintaining the circulation.

To sum up, Toussaint is of opinion that observation proves that in Anthrax in the rabbit death is the result of obstruction, caused by the *Bacteridiæ*, of the capillary vessels, and particularly those of the lungs ; *the asphyxia has, therefore, a mechanical cause.* There is, at the same time, a partial or total loss of the properties of the tissues, and more especially of the functions of the nervous system.

EXPERIMENTAL INVESTIGATIONS IN ANTHRAX FEVER.

FOR a long time past, attention has been directed in a most marked manner to the disease known as Anthrax Fever or Anthrax—the *Milzbrand* of the Germans, and *Charbon* of the French ; and not only have the numerous investigations made with regard to it been instituted to discover its causes, and the best means for preventing its development, but also with a view to discover upon what its existence really depends. We have brought the subject prominently before the readers of the *Veterinary Journal* on many occasions, and quite recently have given the results of the latest researches, which have an important bearing not only upon the etiology of this malady, but also upon that of some other serious diseases, and particularly upon the " germ theory " of disease, which is now being so warmly discussed. In this direction we have afforded our readers an opportunity of learning the views of Pasteur, Koch, Bollinger, Semmer, and others ; and we also gave an excellent *resumé* of previous knowledge of the subject, drawn up by Dr. Burdon Sanderson. The interest excited by the disease on the Continent is far from abating, and the veterinary and other scientific journals are continually publishing the results of observations and experimental researches, made either by veterinarians or other scientists.

We are now about to allude to a series of experiments, a notice of which was published in the *Zeitschrift für Thierheilkunde*, for 1877 (p. 218). These were carried out at an experimental station established by the Bavarian Government at Lenggries, Upper Bavaria, for the special study of Anthrax Fever, the founding of the establishment being due to the initiative of Professor Feser, of the Munich Veterinary School. The results of the proceedings at this station are compared and co-ordinated by a special commission which holds its sittings at Munich, and although the station was only com-

menced at the beginning of September, 1876, the number of experiments made before the end of that year amounted to no less than two hundred: these were conducted upon the larger and smaller domestic animals. Seventy-two of these were carried out at Lenggries or its vicinity, the others were conducted at Munich; they were made upon eighty-four animals—5 horses, 11 cattle, 35 sheep, 6 goats, 12 dogs, 4 fowls, 4 pigeons, 2 rabbits, and 5 fishes. The detailed results of the experiments Feser reserves for future publication.

At the commencement of Feser's stay at Lenggries he attentively examined the pastures on which Anthrax Fever most frequently appeared, and he discovered so many of the lower organisms thereon, and of such varied characters, that he found it impossible to describe them all; in fact, he asserts that the life of a man would not be sufficient to make a complete study of these organisms, the majority of which were of microscopical dimensions. He noticed, however, that nearly all the vegetation on these pastures was charged with rust, smut, or moulds of the most varied kinds, and that everywhere—even on the most elevated lands—the ground was swarming with bacilli or bacteria.

It results from the observations and experiments of Feser that the rust fungus, so frequent in certain countries and during certain years, has no influence in the production of Anthrax. The white mucilaginous mass resembling the honey dew of barley, and which is found every year in the marshes and marshy places of the pastures of Upper Bavaria, infected with the Anthrax disease, was more particularly suspected by Feser, and specially attracted his attention. The labours of Koch and Cohn, to which we have alluded some months since, have since amply confirmed the suspicions entertained by Feser; for it has been ascertained that the mucilaginous matter is made up of the *Bacillus subtilis*, the form and development of which are almost identical with those of *Bacillus anthracis*. When the rods of the latter vegetate abundantly, they give rise to a mucilaginous mass which either cannot, or only with the greatest difficulty, be distinguished from the analogous masses found on the pastures. At a certain stage of their development the bacilli of the last-named masses only appear as immovable rods, differing in no respect from those of the Anthrax fungus; but when they are more developed they become a little mobile, and at a more advanced period in their evolution they resume their former mobility, and form spores exactly in the same way as do the Anthrax bacilli (Koch), and the bacilli of hay (Cohn).

These marsh bacilli, as well as those of hay, are in all probability foreign to the etiology of Anthrax, according to the experiments of Feser; but because of their analogy to the bacteria of Anthrax, a study of them may furnish useful indications in researches undertaken to fix the characters, etc., of the latter. As these marsh bacilli, so like those of Anthrax, are developed, multiply, and infest damp, hot, and marshy pastures, it is admitted as probable that the same happens with the Anthrax bacteria, and that the white mucilaginous masses before mentioned should be suspected as masses of the latter until there is proof to the contrary.

In the soil of the pastures on which Anthrax Fever prevailed other bacteria were found which, unfortunately, are always more or less mixed with other of the lower organisms; among these is the *Bacterium termo* (the ordinary bacterium of putrefaction), which is, in all likelihood, the cause of Anthracoid Emphysema, according to the experiments of Feser.

Feser is inclined to believe that Anthrax Fever does not appear on the pastures of the Alps of Upper Bavaria, except as a consequence of the importation of diseased animals, and that the Epizoöties so produced may subsequently extend more or less rapidly; he gives various reasons for this opinion.

The inoculation experiments made with the *débris* from animals which had died of Anthrax Fever yielded only negative results. The carcases of animals which had been buried for periods varying from four days to a year were found to have lost the power of transmitting the disease. In this respect they were like any other humid anthracoid matter. This fact is readily explained, if it is admitted that in the fresh remains of Anthrax-stricken animals there are only the Anthrax bacilli, from which the spores are absent; the former are destroyed within a few days in moist Anthrax substances.

It remains to be seen whether all Anthrax-affected carcases comport themselves in this way, and to determine what is the special influence which, in a given case, the condition of interment may exercise. To this end experiments were projected, which were being carried out at the Munich Veterinary School when Feser drew up his report. He has repeated Koch's experiments with regard to the development of the *Bacilli anthracis*, and fully confirms the correctness of the facts advanced by that excellent observer. He also infected, or attempted to infect, animals by different channels—particularly by the conjunctiva, vagina, digestive tract, respiratory passages, and by the skin. According to his experiments, dogs, fowls and pigeons resist the action of the Anthrax contagium; sheep, goats and cattle are infected by food which horses can consume with impunity; the inhalation of matters charged with the Anthrax spores rarely produces Anthrax; fish resist the action of Anthrax blood; the fœtus of animals affected with Anthrax Fever is not infected by the contagium; severe cold is favourable to the preservation of Anthrax contagium; skins steeped in water maintain their virulence for several days; in sheep, during life, the *Bacilli anthracis* and their spores are found, and these are eliminated, *en masse*, by the urinary organs, etc.

THE NEW ROYAL WARRANT OF THE ARMY VETERINARY DEPARTMENT.

THE following are the terms of the new Warrant for the Veterinary Department of the Army, alluded to in the editorial article :—

"VICTORIA R.

Whereas we deem it expedient to alter the terms and conditions of service in the Veterinary Department of our army;

Our will and pleasure is that Articles 409 to 415, and 1023 to 1026 of our warrant of 27th December 1870, and Article 143 of our warrant of the 13th August 1877, so far as it applies to veterinary surgeons, be cancelled, and that from the 1st April 1878, the following rules shall be established and obeyed as the sole and standing authority on the matters herein treated of.

1. The ranks and rates of pay of the officers of the Veterinary Department of our army shall be as follows :—

	Daily. £	s.	d.
Principal Veterinary Surgeon . £750 a year, inclusive of all allowances.			
Inspecting Veterinary Surgeon	1	5	0
After 25 years' service	1	7	0
,, 30 ,, ...	1	10	0
Veterinary Surgeon of the 1st Class	0	16	0
After 5 years' service as such	0	18	0
,, 10 ,, ,, ...	1	0	0
,, 15 ,, ,, ...	1	2	0
,, 30 years' total service	1	4	0
Veterinary Surgeon on appointment	£250 a-year.		

	Daily. s. d.
Veterinary Surgeon appointed before the date of our present Warrant—	
Under 5 years' service	10 0
After 5 years' service	12 0
After 10 years' service	14 6

2. The pay of officers of the Veterinary Department shall be issued monthly in arrear.

3. The relative rank of the officers of the Veterinary Department shall be as follows :—

I. Principal Veterinary Surgeon shall rank as Colonel.

II. The Inspecting Veterinary Surgeon acting as Principal Veterinary Surgeon in India shall rank as Lieutenant-Colonel.

III. Inspecting Veterinary Surgeon shall rank as Major ; but junior of the rank, except for choice of quarters.

IV. Veterinary Surgeon, 1st class, shall rank as Captain.

V. Veterinary Surgeon shall rank as Lieutenant.

4. The relative rank of these officers shall carry all precedence and advantages (except as regards forage allowance, and in certain cases choice of quarters), attaching to their corresponding military rank, and shall regulate detention and prize-money, allowances granted on account of wounds or injuries received in action, and pensions and allowances to widows and families.

5. Forage, or the pecuniary allowance in lieu thereof, shall be granted to an officer of the Veterinary Department for the number of horses necessarily kept by him for duty.

6. A candidate for the Veterinary Department shall possess the diploma of the Royal College of Veterinary Surgeons, and shall be required to pass an examination before a board of military veterinary surgeons, and fulfil such further conditions as may be prescribed from time to time by our Secretary of State.

7. A candidate who shall have proved after examination that he possesses a competent knowledge of the required subjects, shall receive a commission as veterinary surgeon for a limited period of ten years' service.

8. The services of a veterinary surgeon appointed after the date of our present warrant shall be dispensed with on the completion of ten years' service, unless he be specially selected for further employment in the Veterinary Department, or if he be unwilling to continue to serve therein, and he shall be entitled to receive in lieu of all pension or retirement, pension for wounds excepted, the sum of eight hundred pounds.

9. A veterinary surgeon appointed after the date of our present warrant of less than ten years' service, who may be disqualified for duty by ill-health, certified by a board of medical officers to have been contracted in and by the service, may, at the discretion of our Secretary of State, be granted half-pay at the rates specified in Article 19, for a period not exceeding six months at one time. In special cases in which the circumstances may appear to our Secretary of State to call for exceptional consideration, it shall be sufficient that the disability shall have been contracted in the service.

10. At the expiration of that period of six months, if the veterinary surgeon so appointed be able to resume his duties, he shall be entitled to complete his term of ten years' service. If he be unable to resume duty, as certified by a board of medical officers, he shall, if he have not served five years, be allowed to remain upon the half-pay list for a further period of six months, without half-pay ; at the expiration of which period, if still unable to resume duty, his services shall be dispensed with.

11. If the veterinary surgeon so appointed have served five years on full-

pay, and be unable to resume duty as certified by a board of medical officers, his services shall be dispensed with, and he shall be entitled to receive, in lieu of all further pay or non-effective pay, pension for wounds excepted, a gratuity at one of the following rates, viz. :—

	£
If he shall have completed 9 years' full-pay service . . .	720
" " 8 " " . . .	640
" " 7 " " . . .	560
" " 6 " " . . .	480
" " 5 " " . . .	400

12. If a veterinary surgeon so appointed be unable to complete his ten years' service from any cause other than reduction of establishment, wounds or ill-health, certified by a board of medical officers to have been caused in and by the service, he shall be allowed not more than six months' leave without pay, at the expiration of which period, if unable to resume duty, his services shall be at once dispensed with, and he shall have no further claim on the Department.

13. If the services of an officer be temporarily dispensed with in consequence of a reduction of establishment, he shall be granted the rates of half-pay fixed by Article 19, until there be an opportunity of re-employing him, or, if he have served five years, he may retire from the service with a gratuity according to the rates specified in Article 11.

14. Every year it shall be competent for our Commander-in-Chief, on the recommendation of the Principal Veterinary Surgeon, to select, with the approval of our Secretary of State, a number of veterinary surgeons not exceeding four, who shall be retained in the service.

15. A veterinary surgeon shall be eligible for promotion to the rank of first-class veterinary surgeon on completing twelve years' service.

16. A veterinary surgeon of the first class shall serve fifteen years in our army as a commissioned officer before he shall be eligible for promotion to the rank of inspecting veterinary surgeon.

17. All promotion from the rank of veterinary surgeon to that of veterinary surgeon of the first class, and from the rank of veterinary surgeon of the first class to that of inspecting veterinary surgeon, shall be given for ability and merit, upon the selection of our Commander-in-Chief, with the approval of our Secretary of State ; and the grounds of such selection shall be stated to us in writing and recorded in the Department. In all such cases the amount of foreign service shall be expressly stated.

18. Officers of the Veterinary Department shall have a right to retire after twenty years' service. Inspecting veterinary surgeons, veterinary surgeons of the 1st class, and veterinary surgeons, shall be placed on the retired list when they shall have attained the age of fifty-five years.

Non-Effective Pay.

19. An officer of the Veterinary Department placed on half-pay by reduction of establishment, or on the report of a medical board, in consequence of wounds or ill-health caused in and by the discharge of his duties, or placed on the retired list under Article 18, on account of having attained the age of fifty-five years, shall (subject to the provision in Article 21) be entitled to half-pay or retired pay at the following rates :—

Principal Veterinary Surgeon	£500 a year.
	Daily.
	£ s. d.
Inspecting Veterinary Surgeon—	
After 30 years' service	1 1 0
" 25 " "	0 19 0
" 20 " "	0 17 6

	£	s.	d.
Veterinary Surgeon, 1st Class—			
After 25 years' service	0	16	0
„ 20 „ „	0	13	0
„ 15 „ „	0	10	6
Veterinary Surgeon—			
After 15 years' service	0	9	6
„ 10 „ „	0	8	6
„ 5 „ „	0	7	0
Under 5 „ „	0	4	0

20. The rate of half-pay awarded to an officer retiring for his own convenience, after twenty years' service on full pay under Article 18, shall not exceed one-half of the rate of full pay of which he was in receipt at the time of retirement.

21. The rate of half-pay awarded to an officer retiring for his own convenience, after twenty-five years' service on full pay, shall not exceed seven-tenths of the daily pay he may have been in receipt of when thus retiring on half-pay, provided he shall have served three years in his rank or shall have served abroad for ten years in all ranks, or for five years with an army in the field. An officer of twenty-five years' service, whose service falls within neither of these conditions, shall be entitled only to seven-tenths of the daily pay received by him prior to his last promotion.

22. An officer of the Veterinary Department placed on half-pay from any other cause shall be allowed only a temporary rate of half-pay (not exceeding the rates specified in Article 19) for such period and at such rates as our Secretary of State shall decide, with reference to the services rendered to the public by such officer.

General Regulation.

23. In all matters not specially provided for in our present warrant, the officers of the Veterinary Department shall be subject to the general regulations for the department of our army.

Given at our Court at Osborne, this 22nd day of April, 1878, in the forty-first year of our reign.

By Her Majesty's command,

FRED. STANLEY.

ADDITIONAL REGULATIONS TO ROYAL WARRANT.

Candidates will be required to pass a medical examination as to their physical fitness for the service. They must also not be over twenty-six years of age, and unmarried.

Candidates on joining will be required to serve a probationary period not exceeding six months; if not then approved of, their services will be dispensed with.

Applications for admission to the Veterinary Department of the Army should be addressed to the Principal Veterinary Surgeon, War Office, London, accompanied by a certificate of age, and testimonials of character and qualifications.

J. COLLINS, P. V. S.

THE FITZWYGRAM PRIZE COMPETITION.

IT has been notified that the competition for these prizes is postponed to Thursday, June 13th.

Reviews.

A Course of Elementary Practical Histology. By M. Foster, M.D., F.R.S., and J. N. Langley, B.A. London: Macmillan and Co.

This is an excellent little book for the student of practical physiology, and, to some extent, of histology; indeed, histology and physiology are closely combined, for the reason given by the learned professor of physiology at Cambridge: "Continued experience makes me more and more convinced that the plan which I adopt is, though troublesome, the safest one. Histological work, unless it be salted with the salt either of physiological or of morphological ideas, is apt to degenerate into a learned trifling of the very worst description; and students are generally only too ready to spend far too much of their time in the fascinating drudgery of cutting sections and mounting stained specimens. In morphological questions, the physiologist has but an indirect interest, and details of microscopic structure ought only to occupy his attention in so far as they serve as a basis for physiological deductions." Therefore it is, that in this guide-book structure and function are made to go hand in hand, and in the case of each tissue or organ, as far as is practicable, the anatomy and histology are first studied, and then without delay the physiology; so that the student, in learning what is known concerning the action of the part, may form an opinion of the relative importance of the structural details. In this way, the plan of the work closely follows that of Professor Huxley, in his "Elementary Biology." Commencing with the careful dissection of a rabbit and a dog, we come to instruction as to the investigation of the structure and properties of blood, cartilage, bone, and teeth, connective tissue, contractile tissues, nervous tissues, bloodvessels, heart, digestive and respiratory organs, as well as the depurative organs and those of sense.

The book is not only an admirable guide for the classroom and laboratory of schools, but it will also be found most useful in assisting those who are attempting to teach themselves the practical details of histology and physiology. The directions are particularly clear and simple, and the manner in which they are arranged is most satisfactory. The veterinary student will find it a most welcome addition to his list of text-books.

The Races of Mankind. By R. Brown, M.A. London: Cassell, Petter and Galpin.

The study of the various human races which inhabit the globe, is full of interest and instruction. The enterprising London publishers, in securing the remarkable talent for treating scientific subjects in a popular manner possessed by Mr. Brown, and by seconding his efforts in a lavish allowance of drawings, have favoured the public with a book which has not its equal on this particular subject. Commencing with the Eskimo, among the American races, Mr. Brown follows Latham's classification of mankind, in describing the American, Oceanic, Turanian,

Persian, Indian, African, Caucasian, and European groups or families; and no pains or research have been spared to present these in such an instructive and interesting way, that the four volumes of which the work is composed read like a fascinating romance. With the accounts of the physical and mental traits of each race, and their manners and customs, are descriptions of the regions they inhabit, interspersed with appropriate anecdotes and thrilling narratives of adventure. As we have said, the book is lavishly illustrated, the woodcuts being excellent of their kind, and many of them extremely spirited and striking drawings.

As a work to be studied, or to be read for amusement during leisure hours by busy professional men, the "Races of Mankind" is to be heartily commended. It is certain to become a very popular book.

Army Veterinary Department.

Gazette, May 7.

YEOMANRY CAVALRY, NORTHUMBERLAND.—Veterinary Surg. Clement Stephenson resigns his commission.

The services having been called for of a couple of veterinary surgeons for duty at the Cape of Good Hope, First Class Veterinary-Surg. F. Duck, and Veterinary-Surg. B. L. Glover, both of the Royal Artillery, have been selected for the duty, and have left to join the field force under the command of Lieutenant-General the Hon. F. A. Thesiger, C.B.

Obituary.

THE following deaths have been reported to the Registrar of the Royal College of Veterinary Surgeons :—

	Diploma dated
Mr. Adam P. Duncan, late Carlow, Ireland .	April 16, 1867.
„ James Rendle, Beaminster . . .	April 14, 1819.
„ William Low, Nasing, Essex . . .	Jan. 25, 1843.
„ William Cross, Colchester . . .	March 6, 1832.
„ John Milnes, late Cheltenham . . .	April 21, 1864.
„ Thomas Allan, Delvinby Carputh, Perthshire	April, 1830.
„ Frank C. Good, late Glastonbury . .	Feb. 18, 1834.
„ Allan Murray Wilson, Limerick . .	April 26, 1869.

France has lost one of its most worthy veterinary representatives, by the death of Monsieur J. B. Huzard. He was Dean of the French Central Society of Agriculture, one of the oldest members of the Paris Academy of Medicine and of the Central Veterinary Medical Society of that city. He was the author of several estimable works—among others, treatises on the unsoundness and warranty of animals, on studs, and on horse-breeding.

Abstract of the Proceedings of the Royal College of Veterinary Surgeons, Veterinary Medical Societies, etc.

ROYAL COLLEGE OF VETERINARY SURGEONS.

ANNUAL GENERAL MEETING HELD MAY 6TH, 1878.

THE thirty-fifth annual meeting of the members politic and corporate of the Royal College of Veterinary Surgeons was held by advertisement, and in accordance with the provisions of the Charter, on the first Monday in the month of May, being the 6th day thereof, 1878, at the College, 10, Red Lion Square, Holborn, London.

Present—General Sir Frederick Fitzwygram, Bart., President, in the chair; Professors Pritchard, McCall, and Axe; James Collins, Esq., Principal Veterinary Surgeon to the Army; Messrs. J. D. Barford, T. G. Batt, F. Blakeway, J. C. Broad, James Broad, James H. Brown, G. Carless, B. Cartledge, H. J. Cartwright, W. Cawthron, M. Clarke, Albert R. Charles, John Roalfe Cox, J. B. Daniel, E. M. Davy, T. J. W. Dollar, E. C. Dray, G. A. Drew, J. C. Dwyer, H. Dyer, Wm. Duguid, Wm. Fearnley, G. Fleming, Wm. Furnivall, J. F. Gillingham, D. Gibbon, T. W. Gowing, T. W. Gowing, jun., T. Greaves, T. P. Gudgin, M. J. Harpley, W. Helmore, T. Hopkin, John Howard, C. Hunting, Wm. Hunting, R. L. Hunt, H. C. Legge, G. A. Lepper, J. Mackender, A. J. Milne, Jas. Moon, Jas. Moore, T. Moore, M. E. Naylor, J. Oliphant, Alf. J. Owles, W. F. Peacock, C. Percival, E. M. Perry, Israel Print, J. Rowe, F. G. Samson, C. C. Sanderson, H. K. Shaw, W. Smith, W. A. South, T. J. Symonds, P. Taylor, Robert Ward, C. J. Whitworth, G. Williams, Wm. Wilson, Joseph Woodger, Ed. Woodger, Jos. Woodger, jun., F. W. Wragg, and the Secretary.

The SECRETARY read the notice convening the meeting, also the minutes of the previous meeting, which were confirmed.

The following gentlemen were appointed as scrutineers:—Messrs. Percival, Symonds, Hopkin, Ward, W. A. South, and T. J. W. Dollar.

The thirty-fifth annual report was then read, as follows:

"The Annual General Meeting of the Royal College of Veterinary Surgeons was held May 7th, 1877, in accordance with the provisions of the Supplemental Charter, when the following gentlemen were elected members of Council in the place of those who retired by rotation—viz., Peter Taylor, John Cuthbert, Richard Sam Reynolds, Francis Blakeway, Benjamin Cartledge, and Matthew John Harpley.

The Council of the Royal College of Veterinary Surgeons have to report that at their first meeting, held May 29th, General Sir F. Fitzwygram, Bart., was unanimously re-elected President, and the following gentlemen were elected Vice-presidents: Messrs. S. H. Withers, Jos. Woodger, jun., H. J. Cartwright, Jas. McCall, T. Walley, and Wm. Smith; Mr. S. H. Withers, Treasurer; and Mr. W. H. Coates, Secretary.

The Council having elected their office-bearers, a special meeting was convened to receive the report from the Committee appointed to investigate the finances of the College.

The Committee thought it would not be advisable to attempt to increase the funds of the College by any material increase of the examination fees (which are the only source of income), especially after the tax lately laid on rejected students.

They therefore recommended a scheme for reducing the expenditure, so as to bring it within the income.

With this view they recommended that the practice of advertising the examinations in the public newspapers should be discontinued.

That no more than two examinations be held in the year.

That the number examined at each meeting of the Court be increased from nine to twelve.

That in case of broken numbers of students—*i.e.* less than twelve—the examiners should be requested to examine any number not exceeding four, on receiving a proportionate increase on the fee for the evening.

That the time given for the examination of each student should be reduced from twenty minutes to fifteen minutes.

That the fee paid by the students on the third examination should be increased from three to four guineas.

The Council, after taking into their most careful consideration the proposals of the Committee, resolved to adopt them; but some opposition having been raised to the recommendation that no more than two examinations be held in the year, it was deemed advisable that the subject should be postponed for further discussion.

The Council next proceeded to the election of a new board of examiners, notice having been given to the former Court to tender their resignation, on account of the re-constitution required by the new bye-laws.

The following is the list of examiners who were elected for the several tables at the respective examinations :—

FIRST EXAMINATION.

Chemistry and Toxicology.

England.	*Scotland.*
Dr. A. Voelcker.	Dr. Alex. Crum-Brown.

(To examine 12 students.)

Materia Medica and Pharmacy.

Professor Duguid.	Dr. James Dunsmure.

Botany.

Professor Bentley.	Dr. Alex. Dickson.

SECOND EXAMINATION.

Physiology and Histology.

Dr. J. Burdon-Sanderson.	Professor Turner.

(To examine 9 students.)

Anatomy.

Mr. George Fleming.	Mr. William Robertson.
„ William Robertson.	„ George Fleming.

THIRD OR FINAL EXAMINATION.

Morbid Anatomy, Pathology, and Pathological Toxicology.

Mr. George Fleming.	Mr. George Fleming.

(To examine 12 students.)

Diseases of the Horse, Veterinary Medicine, Surgery, and Therapeutics.

Mr. M. J. Harpley.	Mr. B. Cartledge.
„ William Robertson.	„ M. J. Harpley.

Practical.

Mr. M. J. Harpley.	Mr. B. Cartledge.
„ William Robertson.	„ M. J. Harpley.

Diseases of the other Domesticated Animals, Veterinary Medicine, Surgery, and Therapeutics.

England.	*Scotland.*
Mr. T. W. Mayer.	Mr. Alex. Robinson.
„ R. L. Hunt.	„ R. L. Hunt.

Practical.

Mr. T. W. Mayer.	Mr. Alex. Robinson.
„ R. L. Hunt.	„ R. L. Hunt.

The Council have deemed it advisable to extend the period of examination for those students who entered under the old rules for the two years' period of study, which was to expire at Christmas 1878, and is now extended to July 1879.

The examiners under the new system have expressed their satisfaction at the marked improvement exhibited by those who have been submitted to the more severe educational test which is now required by the new regulations.

The Council have also had under consideration the suspension of 'Bye-laws 32 and 33' for a period of three years, in order to enable gentlemen who have held the Highland and Agricultural Society's certificates for three years to obtain the diploma of the Royal College of Veterinary Surgeons by passing a second and third examination at one and the same time on payment of full fees; and that those who have obtained their certificate more recently, but prior to December 31st, 1877, shall be required to pass all three examinations at one and the same time, on payment of full fees.

This subject is still under the consideration of the Council.

The Council have to report that since the last annual meeting seventy-one students from the different veterinary schools have received the diploma of the Royal College of Veterinary Surgeons.

The following students obtained honourable mention:—Messrs. Harold Leeney, Alfred Joseph Sewell, Frederick Robert Stevens, and John Richard Carless (Royal Veterinary College), with *very great credit;* also Messrs. John Herbert Callow, George Reed Dudgeon, Edward Miles Perry, and James Broad (Royal Veterinary College), Thomas John Watt Dollar, Peter James Combe (Edinburgh Veterinary College), and David Crabb (New Veterinary College, Edinburgh), with *great credit.*

The election of a board of examiners for the Fellowship Degree was considered by the Council.

It was thought desirable that the examiners should be members of the profession, and also fellows, and be elected for one year only. On the ballot being taken, Professor Williams, Messrs. Fleming, Harpley, and Robertson, were declared duly elected.

Two special examinations for the Fellowship Degree were held on July 7th, 1877, and January 12th, 1878, when the following gentlemen passed their examinations, and were admitted Fellows of the Royal College of Veterinary Surgeons :—

Mr. Richard Poyser, 6th Dragoon Guards, Colchester.
„ William Hunting, Down Street, London.
„ Tedbar Hopkin, Strangeways, Manchester.
„ William Augustus Taylor, Turner Street, Manchester.
„ Thomas Briggs, Prestwich, Manchester.
„ Henry Olver, Tamworth.
„ Arthur Henry Santy, Norwich.
„ Robert Ward, Woking, Surrey.
„ William Duguid, Brown Institution, London.
„ John Woodroffe Hill, Wolverhampton.
„ Joseph Mackinder, Peterborough.
„ Charles Edward Challinor, Pendlebury, Manchester.

The Council have now under consideration the following amendments in Bye-law 50, having reference to the preliminary examination required of candidates for the Fellowship Degree.

The following is the proposed amended Bye-law :—

'Each candidate other than a professor, or ex-professor, at a school affiliated with the Royal College of Veterinary Surgeons, or gentlemen who have passed the Civil Service or Army Examination held by the Civil Service Commissioners, will be required to produce a certificate of graduation in arts at a university to be recognised for this purpose by the Council ; or after an examination by the College of Preceptors, on subjects to be fixed from time to time by the Council.'

Prizes.

The Fitzwygram Prizes.—The number of competitors for these prizes in 1877 was not so large as on the preceding year. The *vivâ-voce* and practical examination took place in London. The only candidates who obtained the required number of marks were from the Royal Veterinary College. Of these only two were successful, viz. :—

Mr. Richard Glover, First Prize £50
Mr. Laurence Tipper, Second Prize £30

The donor of these prizes has intimated that the competition will be held this year in June.

The Royal Agricultural Society's prizes were again competed for by the students from the Royal Veterinary College, and although there were twelve candidates eligible to compete, only four presented themselves for examination.

The examiners in their report expressed regret in not being able to state that the candidates possessed so high a degree of proficiency as last year; but add that the practical portion of the examination was more satisfactory.

Mr. Matthew Hedley, jun. . . £20 and gold medal.
Mr. Thomas Chambers . . . £10 and silver medal.
Mr. Robt. Ernest Hoile . . . £5 and bronze medal.

The Council have recently had under consideration the Contagious Diseases (Animals) Bill, now before Parliament, to which their attention was directed by a letter received from the Lords of the Privy Council, desiring to be favoured with any observations the Royal College of Veterinary Surgeons might wish to offer.

The Council decided to appoint a special committee, which drew up and forwarded the following report, which was duly acknowledged, and a statement made that it would be submitted to the Lords of the Council.

The Committee reported that, 'after carefully considering the provisions of of the Bill, they are of opinion that these provisions are of a satisfactory character ; and if efficiently carried out will largely tend to prevent and suppress, if they do not entirely succeed in doing so, Cattle Plague, Pleuro-pneumonia, and Foot-and-mouth Disease.

'With regard to the other maladies alluded to in the Bill—viz., Sheep-pox, Sheep-scab, and Glanders and Farcy—the Committee cannot make any observation, as they are not the subject of special legislation in this Bill, like the aforementioned diseases.

'Nevertheless, the Committee would beg to point out that these disorders are very contagious and destructive, and should receive equal attention in proposed legislation.

'The Committee also deem it their duty to point out that there are other contagious and dangerous diseases not mentioned in the Bill, but which should be considered in dealing with this important subject. Among these maladies they may specify Rabies, Swine Plague, and Splenic Apoplexy or

Anthrax Fever. They are likewise of opinion that the power of entry, in cases where Glanders or Farcy exists, or is suspected to exist, should be given to the veterinary inspector.

'With regard to the "Declaration of freedom from Pleuro-pneumonia," the Committee consider that the period of fifty-six clear days mentioned in the Bill does not afford absolute security, as the latest or incubative stage occasionally extends beyond that time.

'In Clause 20 (p. 7), par. 1 and 2, the Committee think that in order to ensure a clearer definition, instead of the words "cessation of the disease," it would be better to substitute "after date of complete recovery of the animal last affected."

'With regard to foreign animals, the Committee are strongly of opinion that the slaughter at the port of embarkation is greatly to be preferred to that at the port of debarkation, as it would reduce in a much greater degree the risk of importing contagious diseases.

'Quarantine, to be safe, will require the exercise of the greatest vigilance and skill on the part of the veterinary inspector and superintendents.

'The Committee observe with much satisfaction that local authorities must appoint a member of the Royal College of Veterinary Surgeons as veterinary inspector. The urgent necessity for this step has long been felt, and its importance is now immensely enhanced from the fact that the Bill imposes such serious restrictions on owners of animals, which the employment of fully qualified and competent men can alone render acceptable to them.

'The Committee are confident that the success of legislative measures for the prevention and suppression of contagious diseases in animals, must greatly depend upon the skill and judgment of the inspectors; for, owing to the employment hitherto of very many men who were unacquainted with the nature and symptoms of these disorders, much hardship has been inflicted on stock owners, and the objects of previous bills have been in a great measure defeated.'

The Council were informed that in the Medical Act Amendment Bill (1858), now laid before Her Majesty's Government, there was a paragraph in Clause 22 which was considered very objectionable to the veterinary profession.

The subject having been laid before the Parliamentary Committee, a letter containing the following resolution was submitted to the Lord President of the Privy Council:—

'*Resolved*—That the last paragraph of Clause 22, "that nothing in this section shall impose a fine on a person engaged solely in the cure or treatment of the diseases or injuries of animals and not of human beings," is objectionable from the fact that it protects unqualified persons who are engaged in the treatment and cure of the diseases and injuries of animals.'

The Committee suggested that either the clause should be struck out, or words 'any duly qualified person' inserted.

The Council have subsequently been informed 'that His Grace had no objection to the omission of the paragraph referred to, and that it was only introduced with a view to prevent any vexatious proceedings. He had therefore instructed the draughtsman to remove the paragraph.'

The following is a statement of the attendance of members at the Council meetings held during the year 1877-8:—

Vice-Presidents.

Samuel H. Withers . .	3	James McCall . . .	0
Joseph Woodger, jun. .	4	Thomas Walley . . .	0
Henry Joseph Cartwright .	5	William Smith . . .	4

Council.

Peter Taylor	8	Jas. B. Simonds	2
John Cuthbert	5	Jas. C. Broad	3
Richard S. Reynolds	3	Jas. Moon	5
Francis Blakeway	6	T. W. Talbot	0
Benjamin Cartledge	2	Geo. Balls	3
Matthew J. Harpley	7	W. H. Coates	8
Geo. Fleming	6	T. W. Gowing	5
Wm. Pritchard	3	Jas. Collins	5
Wm. Williams	2	J. Roalfe Cox	4
Hartley T. Batt	8	Gen. Sir F. Fitzwygram	8
Thos. Greaves	8	Robert L. Hunt	3
Geo. T. Brown	6	G. Williams	1
Ed. C. Dray	8		

The College Fund.

The only subscription which the Council have received during the past year has been the sum of twenty-five guineas, presented by Messrs. Peter Taylor and Son, of Manchester. This sum and the balance at the bankers, enabled the Council to make a further investment in the purchase of stock.

	£	s.	d.
Amount of stock standing in the names of the trustees	1390	17	1
Additional purchase	122	16	3
	1513	13	4
Dividends	43	0	6
Total	1556	13	10

The Council regret exceedingly that the total amount collected towards procuring a suitable building for the Royal College is not nearly sufficient for the purpose; and it is in contemplation to petition Her Majesty's Government for assistance.

The most valuable acquisition to the Royal College that has occurred for many years, has been the presentation to the library and museum by Wm. Field, Esq.

The gift consists of many rare and standard books, anatomical plates, paintings, engravings, and water-colour drawings, as well as several interesting anatomical and morbid specimens, plaster casts, models, horseshoes, bits, and veterinary instruments. Also a variety of chemical and galvanic apparatus.

Some extra expenditure has been necessarily incurred in providing accommodation for so large an accession to the College property, and a suitable case has been fitted up in the board-room containing the "Field Library."

Presentations have also been made to the library and museum by Professor Brown, Mr. Geo. Fleming (2nd Life Guards), Mr. Jas. J. Meyrick (Royal Artillery), Mr. Graham Mitchell (Australia), and Mr. Jas. Moon (Kingston-on-Thames).

A printed catalogue of both libraries has been prepared, the total number of volumes being now 800.

The registrar has to report the death of thirty-three members of the profession since the last annual meeting.

Two hundred and fifty copies of the new register, with the charters and bye-laws, have been issued and sold during the past year. A register will shortly be published containing the names of the new members of the profession, and the alterations which have been made since the last issue.

Copies may be had on application to the Secretary, price 1*s.* 6*d.*, or post free 1*s.* 8*d.*

The financial report is annexed. The balance-in-hand, after defraying the expenses of the year, amounts to £528 5*s.* 11*d.*

The Council are glad to be able to report that the measures which they took have been successful in reducing the expenditure within the income, and the result shows a fair balance on the year in favour of the College.

The Council are also glad to be able to report that the new system of examination has worked very satisfactorily. The allotment of one subject only to each table, has made much more apparent the success or failure of the candidate in each subject: for instance, under the old system of examination, horse and cattle practice were linked together; under the present system, the student is examined on each at a separate table.

S. H. WITHERS, *Treasurer, in account with the Council of the Royal College of Veterinary Surgeons, from April 1st, 1877, to March 31st, 1878.*

Dr.	£	*s.*	*d.*
Balance at Bankers', April, 1877	478	3	10
Examination Fees to March 31st, 1877	1042	13	0
Fellowship ditto	262	10	0
Dividends	18	19	10
Copies of Register	13	14	6
Registrar's Fees	0	8	0
Library Catalogues	0	1	0
Property Tax	1	5	0
Gas consumed by C.V.M. Soc.	1	17	6
	£1819	12	8

Cr.	£	*s.*	*d.*
Examiners' Fees and Expenses	703	7	3
Brokerage and Banker's Commission	2	0	3
Rent	100	0	0
Rates and Taxes	38	2	10
Salary to Secretary	150	0	0
Insurances	1	18	9
Advertisements	11	15	4
Printing and Purchase of Type	107	16	11
Diplomas	8	0	0
Stationery and Postage Stamps	27	18	5
Clerk	10	0	0
Reporters	15	15	0
Coals, Gas, and Wood	25	10	9
Bookbinding and Books for Library	7	2	6
Specimen Drugs and Chemicals	1	8	8
Bookcase and Repairs to Library and Museum	27	19	7
Wages	20	0	0
Petty House Expenses and Messenger	32	10	6
Balance at Bankers'	528	5	11
	£1819	12	8

Amount of stock standing in the names of the trustees, £640 19*s.* 11*d.* three per cent. Consols.

We, the undersigned, have examined the above accounts, and have found them correct.

THOMAS MOORE, ALFRED WITHERS, } *Auditors.*

April 27th, 1878."

Mr. DRAY moved, and Mr. HARPLEY seconded, that the report be received. Carried.

Mr. DRAY moved the adoption of the report, and Mr. GOWING seconded the motion.

Mr. DRAY, as one of the Committee who drew up the report, regretted that it was not more favourable, particularly as regards the College Fund. The profession was deserving of better premises than they now possessed, and must, by some means, obtain larger accommodation if they would take their proper status—particularly since the munificent gift of Mr. Field to the museum and library, as well as of other contributors. For want of space the museum and library were not thoroughly appreciated. He thought there was very little chance of their obtaining a grant from Parliament: therefore it was imperative that the profession itself should make a fresh effort by way of starting another subscription. He himself was quite willing, although not a rich man, to double his contribution on condition that the other subscribers would do the same.

A letter from Mr. Mayer was read, regretting that the profession was not more extensively acknowledged, and that they were without a local habitation which would be worthy of the profession.

Mr. GOWING, while concurring in the remarks made by Mr. Dray, wished to call attention to the altered condition of voting. When first the alteration took place he thought it was highly satisfactory; but since then he had reason to change his mind. He had received a circular from a provincial veterinary society, asking him to vote for four members whose names were therein specified, but he could not conscientiously adopt such a course as the circular suggested. If such a mode of proceeding were allowed to go on, by-and-by there would be an undue preponderance of country members on the Council. He only wished to call attention to the matter in the hope that by doing so a free discussion would be elicited. From his experience of the profession, he had found that the members in cases of election were always able to judge for themselves.

Mr. OWLES considered such a system as that referred to by Mr. Gowing was one of coercion. It was also illegal, and would not be tolerated in the election of members of Parliament. He was quite certain that those gentlemen who had issued the circulars would, on consideration, find that they had made a mistake, however high the motives by which they might have been actuated. He did not think it was creditable to the members of the profession that they should be told for whom they ought to vote. The course proposed, he thought, was little short of dictation.

Professor AXE considered the system which had been adopted as one which would not receive recognition in any scientific body. He would not use so strong a word as coercion, but he would regard the method adopted as a species of combination which he thought was most objectionable, and which he hoped their own profession would not for a single moment countenance. He asked those who intended to vote to exercise their judgment as to the capacity and attention which certain members of the Council had exercised in the performance of their duties.

Mr. HUNTING defended the course adopted by the provincial societies, and said it seemed to him the only two objections urged against it were—that it was extremely unfair to the metropolitan members, who had the run of the Council-room, and could do almost what they chose; and that they, being a scientific body, should not be business men and adopt the same tactics as those adopted by members of Parliament in securing their election. Trades-unionism was no doubt in bad odour; but it was resorted to in every profession. As to the Fellowship diploma, he would suggest that it was made much more difficult than it ought to be; and in reference to the educational test, out of sheer charity he would say nothing about it. Looking to the small transactions of the Royal College, he could not agree

with the recommendation of the report for the acquisition of larger premises. When the profession was worthy of a better building no doubt it would obtain it.

Mr. W. SMITH could not agree with the view that the scheme adopted by the country associations amounted to coercion. He thought it would be acknowledged that for some years past the London practitioners had really had the best of the matter, and that the country practitioners, having heads on their shoulders and brains in their heads, should participate in some degree in the management of their own affairs. He referred to the system of "packing" the annual meetings, which, he said, was in former times resorted to for the purpose of securing particular candidates; but he was happy to think that such a state of affairs had ceased to exist. Speaking for his friends in the country, he was sure that they would be as unwilling to do an act of injustice as any gentlemen in the city of London. To say that the mode adopted by the country associations was coercive, unconstitutional, or illegal, was to say that which was untrue and unworthy of those who said it.

Mr. HOWARD was of opinion that until more commodious premises were obtained, the same lack of interest would continue to be manifested in the affairs of the Royal College of Veterinary Surgeons. While fully appreciating the past labours of the Council, he could not but draw attention to the fact that by the Supplemental Charter, the profession was deprived of their political rights by one swoop; and knowing this, no member of the profession would subscribe to the funds for the erection of more extensive premises.

A member repudiated the idea of coercion or trades-unionism, which had been suggested by some of the previous speakers. It appeared to him that the circulars issued were more in the way of suggesting suitable members of the profession as their representatives than anything else.

Mr. HUNTING, Sen., as a provincial practitioner, and as having some share in the improvement of the profession by the establishment of veterinary medical associations in the provinces, gave it as his opinion that the provincial members were almost the hardest working members of the profession, and that what they had done in the way of issuing circulars had been with the object of furthering the interests of the profession at large. If the provincial societies had done nothing else, they had given increased energy to the members of the profession in London.

Mr. HELMORE agreed with the views of the last two speakers. He did not know of any abler or worthier members of the profession than those sent from the provinces. It was sometimes desirable that fresh blood should be infused into governing bodies. He had, on former occasions, had at the annual meeting cards put into his hand soliciting his vote for particular candidates; so that metropolitan members of the Council should be the last to complain of the system of issuing circulars by the country associations. He did not look upon the issuing of these circulars as a system of coercion, but merely as a recommendation of certain candidates for the consideration of the members. Having expressed his satisfaction with several recommendations in the report, he suggested that the refuse of animals which were slaughtered should be properly disposed of, because in it were the germs of disease, which were sometimes spread all over the country.

Mr. FLEMING, alluding to the system of voting papers that had been objected to by some of the previous speakers, thought that it did not deserve any hard names. He paid a high compliment to the administrative ability and tact of the provincial societies, the members of which, he said, were in an excellent position to judge as to who were the fittest members to represent them on the Council. The course that had been adopted was called unparliamentary; but it was not so, because in every parliamentary election he

had received cards similar to those that had been issued by the country associations. He thought it would be an advantage to the profession if even more societies were formed, especially in the west and the south.

Mr. PETER TAYLOR, in a speech of some length, as a country member indignantly repudiated the idea of the country associations being actuated by any but honourable motives, and charged the London professors with packing the room with students at the annual meeting, in order to secure particular candidates.

Professor AXE asked Mr. Taylor to withdraw the charge he had made as to packing the meetings. Such a course had never been resorted to, either by himself or any other of the London professors.

Professor PRITCHARD seconded Professor Axe's remarks, and demanded from Mr. Taylor an explanation.

Mr. TAYLOR adhered to his statement, and expressed himself as willing to prove it if necessary.

Mr. GREAVES expressed himself as taking a deep interest in provincial associations, which, he thought, tended to further the interests of the profession and to promote unanimity. He was quite sure that those associations would send none but tried and experienced men as their representatives. He contended that the provincial members were acting rightly and properly in issuing the voting papers.

Mr. BARFORD said he had a circular sent to him, but he did not look upon it as a species of coercion. He believed the veterinary associations were extremely representative in their character; and, as representing the southern counties, he expressed his regret that, the districts being so widely situated and thinly populated, there were so few veterinary associations in that quarter, and that the former number could not be kept up. He gladly welcomed the new system of voting that had been adopted.

Professor PRITCHARD, again adverting to the charge brought by Mr. Taylor against the London professors of packing the annual meetings, gave it a most positive denial.

Mr. CARTLEDGE endorsed the statement made by Prof. Pritchard, and gave it as his opinion that the country associations had always been fairly represented—in fact, they had been more powerful in the selection of their representatives—than the metropolitan members.

Mr. HUNT said he could safely assert that he had not been influenced by the voting papers that had been sent him. He called attention to the fact that a fair proportion of London representatives was necessary, because, being on the spot, and having the ear of the members of the Government and those in authority in the State, they could facilitate the passing of measures which tended to promote the interests of the profession.

Mr. HARPLEY called attention to the abuse that had been made of the ballot in the case of the Royal College of Surgeons, who had now discontinued the method; and the profession, knowing that such a mode of voting could be abused, would, he was quite certain, stop short before that abuse was made use of.

Mr. ROWE pointed out what he considered an omission in the report. The Committee had suggested other diseases which were not mentioned in the report; but to these he thought should be added parasitic diseases—the increase in which any one in the habit of making *post-mortem* examinations could not fail to be struck by.

Mr. FLEMING, as chairman of the committee who drew up the report, said they did not think it necessary to specify all the maladies which should be taken notice of by the Government, who appeared to be disinclined to notice more than the three bovine maladies mentioned in the Bill.

The PRESIDENT said that, without joining in the discussion which had

taken place rather warmly on the action of the provincial societies, there was one point which had been rather overlooked—namely, that the northern societies had not used their great power to return exclusively provincial members; and, if he recollected rightly, the list that Mr. Dray read contained, out of the seven names, three gentlemen who were well known in London. He begged to move the adoption of the report, together with the Treasurer's balance-sheet.

The motion was carried unanimously.

The minutes of the last meeting were read and confirmed.

On the motion of the President, seconded by Mr. Harpley, power was given to the Council to appoint a committee to confer with the Highland and Agricultural Society in regard to the discontinuance of their examination.

Mr. FLEMING moved that the Government be solicited to assist the Royal College of Veterinary Surgeons in giving it a suitable home, and one which would be worthy of the profession. He thought the time was come when the country should assist them, considering the advantage the profession had conferred upon every part of the Empire during the last thirty-five years in protecting its immense animal wealth.

Mr. CARTLEDGE seconded the motion, which was supported by Mr. W. SMITH, and ultimately carried.

The SECRETARY then read the Scrutineers' report of votes for the election of members. The result was as follows :—

Gen. Sir Fred. Fitzwygram	558	Mr. Proctor . .	303
Mr. Collins . . .	530	„ Hunt . .	297
„ Cox	374	„ Gowing . .	274
„ Coates . . .	345	„ Smith . .	158
„ Morgan . . .	319	„ Naylor . .	127
„ Freeman . . .	310	„ Williams . .	118

The PRESIDENT then declared Messrs. Collins, Cox, Coates, Morgan, Freeman, Proctor, and himself duly elected.

The President decided by lot, in accordance with the provisions of the Charter, that Mr. J. Roalfe Cox fill the vacancy caused by the resignation of Mr. Talbot.

The meeting then adjourned.

ROYAL COLLEGE OF VETERINARY SURGEONS.

NEW MEMBERS OF THE PROFESSION.

AT the several meetings of the Scottish section of the Court of Examiners of the Royal College of Veterinary Surgeons, held in Edinburgh and Glasgow on April 24th, 26th, and 27th, the following students passed their "Final Examination," and received the diploma of the Royal College of Veterinary Surgeons :—

Edinburgh Veterinary College.

Mr. John Blench, Thornley, Durham.
„ Thomas Peter Young, Edinburgh.
„ Walter Johnston Holland, Manchester.
„ George Henry Watkins, Tredegar, Monmouthshire.
„ Peter James Combe, Haddington.
„ John George Muir, Mauchline, Ayrshire.
„ William Slowan Pringle, Newcastle-on-Tyne.
„ Thomas Mallalieu Coates, St. Helen's, Lancashire.
„ Thomas John Watt Dollar, London.

Mr. John Thomas Gregory, Southsea, Hants.
„ Thomas Alexander Killick, Eccleshall, Staffordshire.

Messrs. Thomas John Watt Dollar and Peter James Combe passed with GREAT CREDIT.

Edinburgh New Veterinary College.

Mr. Robert Knight, Dunfermline.
„ John Thomas Phllips, Carmarthen, South Wales.
„ Adam Sievwright, Keith, Banffshire.
„ David Crabb, Paulride, Carnoustie, Forfarshire.
„ William Henry Bridge, Oldham, Lancashire.
„ Henry Hannan, Limerick.
„ Joseph Darbyshire, Wigan.
„ Frank Bottomley, Oldham.
„ Edward Hitchin, Robin Hood's Well, Doncaster.
„ William George Chisnall, Liverpool.

Mr. David Crabb passed with GREAT CREDIT.

Glasgow Veterinary College.

Mr. William Findlay Houston, Wester Walkinshaw, Paisley.
„ Andrew Robertson, Glasgow.
„ Amos Wilkinson, Didsbury, Manchester.
„ Clayton Love Hingston, Bay City, Michigan, U.S.
„ Hugh Adolphus Warburton Ferguson, Dublin.

The following students passed their "First Examination":—

Edinburgh Veterinary College.

Mr. John Douglas,
„ Alexander Henderson Gentle,
Mr. Robert Humphries Jones,
„ Robert Bouchier Prentice.

Edinburgh New Veterinary College.

Mr. Joseph Temple,
„ James Wood Ingram,
„ William Swithenbank,
Mr. Charles James Martin,
„ Edward Yorston,
„ James Bell Paterson.

Glasgow Veterinary College.

Mr. William Pettigrew,
Mr. Hugh Gardner Marshall,
Mr. William James Gray Johnston.

The following students passed their "Second Examination":—

Edinburgh Veterinary College.

Mr. George Marshall Mitchell,
Mr. Charles Rutherford.

Edinburgh New Veterinary College.

Mr. Alfred James Jones,
„ John Carr,
„ Andrew Hume,
„ Edmund Wood Goldsmith,
„ Edward Hugh Leach,
„ Frederick Garside,
Mr. Thomas Herbert Lewis,
„ John Henry Wilson,
„ Thomas Barrot Stone,
„ Philias Martial,
„ Kay Lees,
„ John Legge.

Glasgow Veterinary College.

Mr. William Miller,
„ William McQuiston,
„ Jeremiah McCarthy,
„ John Baillie Hamilton,
Mr. John McDougall,
„ James Storrar,
„ Bernard Patrick Mahoney,
„ Charles Douglas Currie.

ROYAL VETERINARY COLLEGE, EDINBURGH.

THE session of the Royal Veterinary College, Clyde Street, was brought to a close on April 26th, by the presentation of the prizes to the successful students. The ceremony took place in the City Chambers—the Town Council being Trustees of the College—and there was a large attendance of ladies and gentlemen, friends of the students and of the Institution. Bailie Rowatt, in the absence of the Lord Provost and of Bailie Cranston, convener of the committee of management, presided; and there were present Bailie Tawse, Councillors Landale, Turnbull, Macdougald, Milne, Macknight, Principal Walley, Professors Baird and M'Fadyean, Mr. M'Callum, V.S.; Mr. Rutherford, V.S.; Mr. Macdougald, Granton Maines, etc.

Principal WALLEY read his annual report to the trustees of the College. "I have," he said, "to report that, notwithstanding one or two unavoidable and unlooked-for drawbacks at the close of the last sessional year, the present condition of the College is in every sense satisfactory; the number of students joining since the date of my last report being far in excess of the number during any similar period for several years, and, what is more encouraging, the report of Dr. Donaldson (the examiner appointed by the Trust) states that the general educational attainments of the candidates are considerably above those of previous years. As to the results of the spring examinations, I cannot at present say much, as they have not yet terminated, but so far as they have gone we have every reason to be satisfied. In the competition for the Highland and Agricultural Society's gold medal for the best general Examination, Mr. John Malcolm took the first place; the same gentleman also made a good second for the best practical examination. In the intra-collegiate competitions for prizes, much spirit has been shown, especially in the competition for Councillor Waldie's prize; the tests also have been much more severe than usual. The results of the various competitions are as follows:—For Councillor Waldie's prize (open to all the students) four were placed, after three trials, in the short leet—viz., Messrs. Watkins, Dollar, Malcolm, and Young—the final test placing Mr. Young first, and Mr. Watkins second. For the Highland Society's silver class medals, Mr. Malcolm takes the highest place, having obtained the medals for botany, chemistry, horse pathology, cattle pathology, and physiology—Mr. John Blench being second, he having obtained the medal for anatomy, and the extra medal for cattle pathology, and being second in the competition for horse and cattle pathology. Mr. H. E. Poole is the recipient of the medal for materia medica, and Mr. Watkins of the medal for clinique and practical examination. Mr. J. T. Gregory deserves honourable mention in the competition for the horse and cattle pathology medals. The Professor's gold medal for cattle pathology was obtained by Mr. Malcolm; Mr. Blench being second. The result of these various examinations gives Mr. Malcolm the gold medal, and Mr. Blench the silver medal, of the Dick Trust. For the best essay of the session Mr. Dollar takes the silver medal of the Veterinary Medical Association and Mr. Malcolm the certificate of merit—the subject chosen by the former essayist being "Strangles," by the latter Zymotic Pleuro-pneumonia in cattle. Dr. Donaldson reports Mr. Ryan as having obtained the extraordinary matriculation certificate, and Mr. Woods the ordinary for the present session, Mr. Calvert being third. I have to express my indebtedness to my colleagues for their sympathy and assistance, to Dr. Donaldson for carrying out the examination for the matriculation certificates, and to Mr. Robertson, Kelso, for acting as arbiter in the essays. The following gentlemen have complied with the rules of the College and of the Veterinary Medical Association, and having passed the Highland and Agricultural Society's examinations, are entitled to the class certificates and to

the diplomas of membership and fellowship of the Association :—Messrs. Muir, Dollar, Watkins, Gregory, Poole, Young, Blench, Walsh, O'Riardon, Malcolm, Kirk, and Pringle. The certificates of several gentlemen who have not yet passed any examination are withheld until the results of the London examinations are known."

The medals were then presented to the students by Bailie Rowatt, Bailie Tawse, Councillor Landale, and the Principal.

The CHAIRMAN said he was expressing the sentiments of every member of the trust when he announced the extreme gratification which the Principal's report of the success of the last session had given. He was glad to hear that the number of students at the College was greater than in any year since Principal Walley came to the College, and the examiners' report showed that the students' examinations had been above the average. On the part of the trustees of the College, he begged to thank Principal Walley and the Professors for the great attention paid to the students.

Principal WALLEY congratulated the students upon their success, and wished them very heartily still further success in the examinations for the London diploma. He thanked the students for their gentlemanly conduct during the past session, and for their attention to their studies. He sincerely hoped that those who had completed their course would go forward to the world remembering their *alma mater*, and that when opportunity occurred they would assist younger men at College by sending them interesting specimens. He trusted they would follow their noble calling with the earnest determination of affording as much relief to the lower animals from pain as was within man's power.

On the motion of Bailie ROWATT, a vote of thanks was accorded to the Highland Society for the interest they had always taken in the College, and for the medals which they had presented to the successful students.

On the motion of Principal WALLEY, a vote of thanks was given to Bailie Rowatt for presiding.

EDINBURGH NEW VETERINARY COLLEGE.

THE winter session of the New Veterinary College, Edinburgh, was brought to a close on April 27th, when prizes were presented to the successful students, and presentations made to Professor Williams by the students attending the College, and by General Sir Frederick Fitzwygram, Bart., on behalf of a large number of members of the veterinary profession. The meeting took place in the hall of the College, Gayfield House ; and besides the students there was a large attendance of ladies and gentlemen. The chair was occupied by General Sir Frederick Fitzwygram, President of the Royal College of Veterinary Surgeons ; and among other gentlemen present were—Professor Williams, Dr. Young, Mr. G. M. Barclay, R.S.A. ; Mr. Munn, High School, Edinburgh ; Messrs. Finlay, Aitken, Dalkeith ; Borthwick, Kirkliston ; Connochie, Selkirk ; Macdougal, Storie, East Linton ; Dollar, Jun., London.

Professor WILLIAMS intimated letters of apology for absence from a large number of gentlemen, and afterwards made a few observations appropriate to the close of the session, which he said had been the most successful ever experienced at the College, the number of students having been eighty-six, or about twenty more than attended the previous session. The students had also been most attentive in their studies, and had attained generally a high degree of proficiency. The Professor then proceeded to deliver the prizes as follows :—

The gold medal presented by the Highland and Agricultural Society for open competition had been gained this year by one of the students attending

the New College—Frank Bottomley, Oldham; and in the same class of prizes first-class certificates had been awarded to John T. Phillips and David Crabb, and second-class certificates to E. H. Leach and J. H. Wilson. The following prizes, given by the Highland Society, and confined to students attending the New College, had been awarded to the undermentioned students :—

Equine Pathology.—Silver medal, W. H. Bridge; first-class certificates, J. S. Walker and Henry Low; second-class certificate, John T. Phillips.

Bovine Pathology.—Silver medal, John T. Phillips and Edward Kitchin, equal; first-class certificate, W. H. Bridge; second-class certificate, A. Sievewright.

Anatomy.—Silver medal, T. H. Lewis; and certificates to John Carr, F. Garside, and Edward Leach.

Chemistry.—Silver medal, William Swithenbank; first-class certificate to — — Fraser.

Silver medal presented by the Edinburgh Veterinary Medical Society, gained by Edward Kitchin, Doncaster. A certificate was granted to Joseph Darbyshire, Wigan.

Botany, Physiology, and Materia Medica.—Silver medal awarded to T. H. Lewis, Crewe.

In addition to the above, Professor WILLIAMS also intimated that several prizes had been awarded for examinations on other subjects, such as educational examinations, to —— Nash, who had gained the first, and Canty the second prize. For the prize of £20, which he himself had offered to students who were successful in three successive years, the successful competitors in this, the second year, were again T. H. Lewis and E. H. Leach; and if they were successful next year, the Professor intimated that he would have the pleasure of handing each a cheque for £10. The silver medal of the Edinburgh Veterinary Medical Society for the best essay had been awarded to Edward Kitchin, the subject of whose essay was "The Construction of Stables," the award being made by Mr. R. Paterson, V.S., Dumfries, who had kindly acted as adjudicator.

The prizes having been delivered, General Fitzwygram rose to present the Professor with a full-sized head portrait of himself; and in making the presentation, he said that, both as a personal friend and as President of the Royal College of Veterinary Surgeons, he had great pleasure in doing so. As a work of art it was valuable, but he knew that to Professor Williams it was more valuable from the fact that it was a presentation to him as the Principal of the New Veterinary College by the veterinary profession. It was always pleasing for a gentleman to have a testimonial presented to him, but when it was presented by a large body of subscribers, it showed more fully the worth of the man and also his personal attainments. As regarded the latter, he would say that the Principal was really remarkable, not so much that he had shone in one branch of the veterinary science, but because he had shone in all three branches of the science—mostly, however, as a practical man in the treatment of disease—and was known in another sphere for his wonderful skill as a professor in teaching. His reputation, however, was more widely known throughout the length and breadth of the land, and also of Europe, India, and the United States, as one of the best writers of veterinary works that ever lived. He wished them specially to note this last feature, because veterinary literature had hitherto been one of the worst features connected with veterinary science. In referring to the Principal's career, the gallant General stated that a few years ago he was in possession of a large and lucrative practice as a veterinary surgeon at Bradford. About that time the Principalship of the Old Clyde Street College became vacant—an institution

of which he never spoke without respect, founded, as it was, by the great skill and unfailing energy of his old friend Professor Dick, who worked for it during so much of his life, and when he died, gave what he had gained to the veterinary profession. His friend, Professor Williams, accepted the vacant office, with the sole aim of devoting his great professional talents to the advancement of veterinary science, and under him the College had increased in numbers, reputation, and eminence. But, after a time, some difference, into the nature of which it was not worthy of him to enter, arose between Professor Williams and the governing body of the school, and he resigned his Principalship. Thus, at middle life the Professor was somewhat stranded. But Professor Williams was a man worth calling a man. He was not going to give in, but determined to fight the battle of life, and the battle of veterinary science, trusting to his own resources—a high character, great skill in teaching, and the confidence of his students. He thought it was a remarkable feature in the career of the Professor that he succeeded in carrying away from the old school in Clyde Street to a new and untried school almost the whole of the students of the Clyde Street school. Now, he might fairly say that success had crowned his efforts, as the New Veterinary College, if not in the foremost, was in one of the foremost positions of veterinary schools. He was glad to have heard from the Principal that day that the school was now more prosperous in numbers than in any other session, and that the students had behaved themselves in their classes like gentlemen and men of honour.

Professor WILLIAMS, in reply, said he felt the honour conferred upon him so deeply that he was unable to express his gratitude in words. He placed a very high value on this handsome presentation, given to him through the College of Veterinary Surgeons as a mark of esteem and respect from a large number of subscribers. It would console him for many anxieties and troubles he had had to bear, and be an ever-present evidence to him that his conduct in the past had received their approval. It would also prove a stimulus to him for the future, and make him careful to do nothing to forfeit the good opinion already formed of him by the members of the veterinary profession. The fact that the presentation had been made to him by Sir F. Fitzwygram, the esteemed President of the Royal College of Veterinary Surgeons, enhanced the value of the gift. He again thanked the subscribers for the mark of their esteem and respect now conferred upon him.

The portrait was a very striking likeness, and drew forth warm applause when it was unveiled in presence of the audience. The following was the inscription:—"Presented to W. Williams, Esq., F.R.C.V.S., and F.R.S.E., Principal of the New Veterinary College, Edinburgh, by members of the veterinary profession, as a mark of their high regard for his professional and personal character. 1878." The artist was Mr. G. M. Barclay, R.S.A.

Mr. KITCHIN afterwards presented Principal Williams, in the name of his fellow-students, with a large photograph, in gilt frame, of the students attending the New College during the present session, and the Principal suitably acknowledged the gift.

A vote of thanks was afterwards accorded to the artist, Mr. Barclay, who replied; and a similar compliment was paid to the chairman, who gave a short address in closing the session, referring to the increasing importance of the veterinary profession and the duties of students and professional men.

This closed the proceedings.

GLASGOW VETERINARY COLLEGE.

THE winter session at this institution terminated on April 24th; and on the 25th and 26th the oral examinations of the Royal College of Veterinary Surgeons

were conducted within the museum of the College. The candidates for the diploma were also subjected to a rigid practical examination, conducted on horses, cattle, and sheep brought to the College for that purpose. Twenty-four students presented themselves for examination; and the following gentlemen were awarded the medals granted by the Highland and Agricultural Society of Scotland, and the certificates of merit granted by the College :—Horse pathology (written examination)—Medallist, Mr. Barry, Kilkenny, Ireland ; first-class certificates, Messrs. Wilkinson, Manchester, and Robertson, Glasgow ; second-class certificates, Messrs. Houston, Paisley ; Clay, Cromford, and Webster, Wexford, Ireland. Cattle pathology (written examination)—Medallist, Mr. Houston ; first-class certificates, Messrs. Wilkinson and Barry ; second-class certificates, Messrs. Robertson and Clay. Practical examination of horses as to soundness, operations, etc.—Medallist, Mr. Wilkinson ; first-class certificates, Messrs. Barry and Houston ; second-class certificates, Messrs. Robertson and Clay. Practical examination of cattle and sheep as to age, soundness, operations, etc.—Medallist, Mr. Houston ; first-class certificates, Messrs. Clay and Webster ; second-class certificates, Messrs. Robertson and Ferguson. Best oral examination on all subjects (Principal M'Call's gold medal) —Mr. Hugh Ferguson, Dublin. Histology and physiology—Medallists, Messrs. Currie, Isle of Arran, and Kingston, Bay City, U.S.A. ; first-class certificates, Messrs. Houston, Barry, and Mahony ; second-class certificates, Messrs. Hamilton, Clay, and Wilkinson. Anatomy (special and comparative)—Medallist, Mr. Hamilton, Blantyre ; first-class certificates, Messrs. Mahony and Currie ; second-class certificates, Messrs. Storrar, Chester, and John M'Dougall, Oban. Pathology (junior written examination) —Medallist, Mr. Hamilton ; first-class certificates, Messrs. M'Dougall and Currie ; second-class certificates, Messrs. Mahony, M'Quiston, and Storrar. Best oral examination on anatomy, physiology, and histology (Professor Allen Thomson's gold medal)—Mr. Currie, Arran.

CENTRAL CANADA VETERINARY ASSOCIATION.

On March 20th, a number of veterinary surgeons practising in Eastern Canada, and in the State of New York, met in the hall over Dr. Coleman's infirmary, for the purpose of forming an association for Central Canada. Among those present were noticed the following surgeons :—A. O. F. Coleman, Ottawa ; R. C. Hutchings, Watertown, N.Y. ; T. A. Hood, Ogdensburg ; R. W. Kenning, Pembroke ; T. Allan, Brockville ; and T. H. Murcott, Ottawa.

Dr. Coleman presided ; and after a constitution and bye-laws had been adopted, the following officers were elected for the current year :—President, A. O. F. Coleman ; Vice-president, R. C. Hutchings ; Secretary, T. H. Murcott ; Treasurer, R. W. Kenning. The meeting then adjourned until eight o'clock, when Dr. Hutchings read a most interesting paper on the use of the hypodermic syringe in the treatment of the diseases of domesticated animals. He said in the hands of the physician it had performed wonders, and saved many animals that would otherwise have been lost, from the inability of the stomach to retain medicine a sufficient length of time to become absorbed. If such satisfactory results can be obtained in the medical profession, it is not unreasonable to suppose that equally good results can be gained by the veterinary. After referring to the success he had had in the treatment referred to, he pointed out that the advantages derived were, (1) rapidity of action ; (2) intensity of effect ; (3) economy of material ; (4) certainty of action ; and, what is of essential benefit to the veterinary surgeon, facility of introduction. The only disadvantages he knew of were occasional local

suppuration, which occurred at the seat of the injection; but such a result was of minor importance, compared to its overwhelming advantages. Mr. Allman claims to have overcome the tendency to suppuration by using glycerine as a solvent. He (the speaker) had tried his formula, and in the majority of cases suppuration followed. But it might have been his fault in not preparing the solutions thoroughly, or it might be that glycerine is more of an irritant to the cellular tissue than water. He gave a description of the operation of injections and of the medicines used, with other valuable information.

Dr. SWEETLAND was present and spoke. He said he had no doubt it would prove of the utmost importance to veterinary medicine. He complimented Dr. Hutchings on his creditable paper, which certainly showed considerable research, with a mind capable of applying suggestions borrowed from the medical profession. With regard to the hypodermic syringe, it was an agent of immense importance to the medical man, and would certainly prove of great use to the veterinary. It would, of course, be of greater service in spasmodic colic, where the relief would be immediate; but for constipation and cases of that character, the relief would be but temporary, as there could be no permanent cure until the cause was removed.

Dr. HUTCHINGS said with reference to the fuse of the hypodermic syringe, he had been careful to exclude air.

Dr. MACDOUGALL, who was also present by invitation of the President, made a few remarks of a complimentary character, after which a general discussion took place on the paper just read.

A vote of thanks, on motion of Dr. Kenning, was passed to Dr. Hutchings for his able and instructive address, after the President had made a brief address endorsing his views.

ONTARIO VETERINARY COLLEGE.

THE success which has attended this new well-established Institution since its inauguration must be gratifying to the Principal (Professor Smith), to those more directly associated with him, and to the Agriculture and Arts Association, under whose auspices it is conducted. The city of Toronto, also, may feel a pardonable pride in the fact that this, the leading veterinary college of the continent, is located in its midst.

The session just closed has been the most successful of any yet held. While in the previous winter fifty students attended, last winter seventy were present. In addition to the instruction given by the regular staff of Professors, Dr. Bovell has delivered a most valuable course of lectures on Inflammation. Owing to the great facilities offered for the study of veterinary science, and to the diligence and perseverance of the students, a high degree of proficiency has been obtained, as shown by the results of the very thorough examinations just closed. Another pleasing feature in the history of the College has been the kindly feeling always displayed between those teaching and the students, and which was but recently manifested in the presentations to Professor Smith and Mr. Duncan.

The board of examiners are appointed by the Agriculture and Arts Association, and consist of the following gentlemen :—Mr. Ceasar, V.S., Port Hope : Mr. Coleman, V.S., Ottawa ; Mr. Cowan, V.S., Galt ; Mr. Duncan, V.S., Goderich ; Mr. McNaught, V.S., Seaforth ; Mr. Sweetapple, V.S., Brooklyn ; Mr. Wilson, V.S., London ; Dr. Thorburn and Dr. Barrett.

The examinations were held in the large museum of the College, and during the day many visitors were present, consisting chiefly of former graduates of the College, who expressed themselves as highly gratified with the thorough

nature of the examination. Owing to the large number of students to be examined, it was late when the examiners had completed their labours ; but at 10 p.m the Board met the students in the Museum, when Mr. Duncan was called on by Professor Smith to announce the result of the examinations. The following gentlemen have received diplomas : S. G. Anderson, Tottenham ; L. P. Chase, Illinois ; J. R. Deacon, London ; F. W. Derr, Ohio ; G. Falls, Ottawa ; T. Hagyard, Kentucky ; C. Hand, Alliston ; H. Heckenberger, Pennsylvania ; G. P. Hinman, Cobourg; J. Humphries, Pennsylvania ; W. Jex, Brantford ; A. Moore, Guelph ; J. McKerracher, Highgate ; J. V. Newton, Barrie, Ontario ; S. P. Palmer, Toronto ; B. A. Pierce, Illinois ; H. Setterby, New York ; A. N. Smeall, Toronto ; E. R. Smithers, St. Louis ; A. R. Stephenson, Cobourg ; J. Waddel, Seneca ; L. E. Wheat, Pennsylvania ; G. Theobald, Teeswater.

The following gentlemen have passed a Primary—F. W. Mathews, Toronto ; S. Ottewell, Glasgow. Prize and Honour List : Junior Class—Chemistry, 1st Prize, W. Rose. Honours—S. Foelker, J. Gemmel, F. C. Grenside. Anatomy—Silver medal presented by the Agriculture and Arts Association—S. Foelker ; 2nd, E. Prentice ; 3rd, J. C. Rutherford. Honours —T. Fisher, J. Frink, F. C. Grenside, W. Rose.

Senior Class—Breeding and Management of Stock—1st Prize, given by Hon. S. C. Wood, Commissioner of Agriculture, S. P. Palmer. 2nd and 3rd, presented by the Agriculture and Arts Association, G. P. Hinman, J. V. Newton.

Pathology.—Silver medal presented by the Ontario Veterinary Medical Association, G. P. Hinman ; 2nd, W. Jex ; 3rd, H. Sutterby and S. P. Palmer, equal. Honours—L. P. Chase, F. W. Derr, G. Falls, J. Humphries, J. V. Newton.

Physiology.—1st Prize, L. P. Palmer. Honours—G. Falls, W. Jex.

Chemistry.—1st Prize, H. Sutterby. Honours—G. P. Hinman. J. Humphries, S. P. Palmer, E. Smithers, L. E. Wheat.

Entozoa.—1st Prize, J. V. Newton. Honours—S. G. Anderson, G. P. Hinman, A. N. Smeall, H. Sutterby.

Materia Medica.—1st Prize, G. P. Palmer ; 2nd, W. Jex and G. P. Hinman ; equal honours, J. Humphries, E. Smithers, H. Sutterby.

Anatomy.—Silver medal presented by the Agricultural and Arts Association, H. Sutterby ; 2nd, W. Jex ; 3rd, S. P. Palmer ; honours, G. Falls, G. P. Hinman, J. N. Newton.

Gold medal given by the Ontario Veterinary Medical Association for the best general examination, W. Jex.

The announcements were greeted with loud applause, after which Professor Buckland presented a gold medal to Mr. Jex in appropriate words, to which that gentleman replied. Professor Barrett then presented the silver medal to Mr. Hinman as having passed the best examination, and complimented him upon his success in pathology. Mr. Hinman replied, expressing his thanks for the medal, which, he said, was quite unexpected.

Mr. Sutterby was then called forward, and

Mr. T. STOCKS, President of the Board of Agriculture, presented him with a silver medal as the best anatomist in the senior class. Mr. Stocks spoke highly of the veterinary profession, which requires more skill than the medical profession. He mentioned favourably the strict character of the examinations, and urged the students to press forward in the path of improvement. After paying a grateful compliment to Professor Smith, and handing the medal to Mr. Sutterby, he resumed his seat amid applause. Mr. Sutterby replied appropriately, and Mr. Craig presented a silver medal to Mr. Foelker, as having passed the best junior examination.

Mr. COLEMAN very appropriately alluded to the great pleasure it gave him

to attend the annual examinations, and stated that he had for several years acted as an examiner, and he was pleased to notice the very high standard which the graduates of that day had attained. He trusted that those gentlemen who had then obtained their diplomas, would still continue to be students, to keep up with this progressive age, and that their career would be as bright and shining as the elegant medals which had just been presented.

Mr. Ceasar, Professors Barrett and Buckland then spoke, after which a vote of thanks was passed to the Examining Board for the able and impartial manner in which they had conducted the examinations.

Mr. NEWTON then spoke of the energy and ability shown by the Professors of the College, and called for three cheers for the Faculty, which were given with a will.

Professor SMITH replied, and thanked the students for their kindness. But a few days ago he had met them as students, now they were professional men. He took leave of them with regret, but earnestly hoped that they would prosper in their profession. The company then dispersed, after heartily joining in "God save the Queen."

Notes and News.

THE ROYAL SOCIETY. -Amongst the names already submitted to the Council of the Royal Society for the much coveted distinction of F.R.S., are Dr. Hughlings Jackson and Mr. Schäfer for their scientific and literary labours. Whilst we sincerely trust that these gentlemen will be elected, there are others whose labours are of longer duration, and of a much more extensive character than the latter of these two candidates. There is Mr. Peter Squire, who has now reached to nearly fourscore years without any public mark, for his experimental researches in chemistry and pharmacy, and for his literary works which are spread over the civilised world. Then we have Mr. Fleming, of the Army Veterinary Department. Certainly there is no living writer who has done more than he towards the elucidation of obscure points in pathology, or who has written so large a number of really scientific works. When we mention that in less than ten years he has published five works of from 600 to 1400 pages each, besides various smaller works and contributions to journals and societies, the enormous amount of labour to which we refer will be readily understood. There are others whose names we should rejoice to see decorated with the F.R.S., but refrain spoiling the list by prolixity.—*Medical Press and Circular.*

CONTAGIOUS PLEURO-PNEUMONIA IN HOLLAND.—The gradual decline of Pleuro-pneumonia in Holland since 1871, in which year it attained its highest point, is thus set forth in an official report upon the subject. The number of cases in 1871 was 6,078; in 1872, 4,009; in 1873, 2,479; in 1874, 2,414; in 1875, 2,227; in 1876, 1,723; and in 1877, 933 only. This decrease is due to the police sanitary measures introduced and strictly enforced.

SALICYLIC ACID.—A writer in a Continental contemporary recommends salicylic acid as an infallible means of curing or preventing the diarrhœa of sucking calves. It may be given twice a day in small doses to the calf itself, or in larger doses to the mother. He has found that the calves of cows to which the medicine was given two days in succession immediately after calving, remained absolutely free from diarrhœa, while all others in the sheds were more or less affected.

Correspondence, etc.

QUACKERY.

To the Editor of the VETERINARY JOURNAL.

SIR,—In reading your valuable Journal for last month, I notice a letter written by a "French Student," on Quackery, informing us what amount of ignorance exists even in France relating to it. If your space is not too limited, will you allow me, as an English Student, to make a few remarks with reference to the subject? It appears that, in France, a non-qualified person dare not assume the title of Veterinary Surgeon without incurring a penalty. Now, in England, men can use the title without any fear of being prosecuted or molested in any way. Why is this? Is it because we do not need protection, or is it due to the apathy of the leading members of the profession, or want of energy on the part of the Council to suppress, and finally banish, the evil complained of?

I hope a different feeling is shown in England to gentlemen who earnestly try to abolish it, than in France; for the French Student tells us that veterinary surgeons who endeavour to abolish it are considered either incapable or idle in the profession, or—in plain words—that they are "muffs." Now, if qualified veterinary surgeons are backward in the profession, what are men who have had no education, proper tuition, or anything else worthy of it, but are merely grooms, or are men taught by a farrier, who perhaps is ignorant in the strictest sense of the word? A feeling prevails in our favoured country—and perhaps rightly—that the quack or other empiric, whether a groom or anything else, derives the high honour, credit for cleverness, etc., awarded to him, from the uselessness of some veterinary surgeons. It is a known fact that some men will learn quicker and become more proficient than others; and some, I fear, scarcely go to college with the intention of learning; or if so, to just become a member of the Royal College of Veterinary Surgeons, and leave the profession almost entirely, not caring what course it pursues—in fact, feeling altogether unconcerned about everything relating to it. If we, as students, do not try to become competent, and be able to give satisfaction to our employers, how can they put confidence in us, or trust us with valuable animals, when the quack, who will be most likely near at hand, can come and appear to, if not in reality, effect a cure where we have failed; or perhaps, not having studied the Commandments very carefully, will omit one of them, which plainly tells us, "Thou shalt not lie."

It is surprising to see so many eminent veterinary surgeons taking little or no interest in the matter, believing it to be utterly useless, and thinking that the employers will distinguish the qualified from the unqualified practitioner. But, unhappily, this is not the case, as they to their sorrow would see, were they situated in that particular locality where the parasite dwells.

There undoubtedly is want of energy in this matter; and perhaps it will not be remedied until all veterinary surgeons take an interest in the affair, and students go into the profession with some approved object in view, and determine to become esteemed and honourable members of the College.

Great praise is due to those gentlemen who endeavour in every possible way to give encouragement to us; numerous prizes are offered as a stimulus, and I hope they will be more and more appreciated, as they give us more energy and spirit with regard to the profession, and thus fully reward them for their high and honourable efforts.

There is an old motto which says, "Unity is strength," and this would be

very suitable to veterinary surgeons and students, who should unite, and not maintain that jealousy which I fear exists, but fully transmit to each other and the profession at large the views required for its complete success.

Trusting to be excused for taking up your valuable space,

I am, sir,

"AN ENGLISH VETERINARY STUDENT."

REMINISCENCE OF THE ANNUAL MEETING OF THE ROYAL COLLEGE OF VETERINARY SURGEONS, 1878.

To the Editor of the VETERINARY JOURNAL.

SIR,—On Monday, May 6th, we found ourselves assembled in our dingy old quarters in that quiet, seedy old Square; and our respected and obliging secretary, with his placid, easy, and familiar smile, glad to greet us once again. For a moment or two I passed into deep reverie, thinking how well the *tout ensemble* was arranged; when the melodious voice of our secretary called me to duty, and I had to pass some two hours in such a stale ancient room of small dimensions, in which I noticed that narrow little staircase descending to that nice little room below. But I am not, indeed should not be complaining; for my time was most usefully employed (although I thought this duty might have been discharged earlier in the day, before the meeting opened). The atmosphere I inhaled, although of a stale musty flavour to my olfactories, was quite a luxury to the stifling fumy vapour of the Council Chamber, wherein there were congregated some eighty members of our craft, anxiously awaiting the annual report, and to disintegrate it as soon as possible.

Everything passed off in excellent order—a lively little episode on the ballot excepted; and I must say I am pleased to know our medical associations are exerting themselves in so good a cause, thus bringing their good men to the front, and placing them in our Council. Moreover, I trust they will ever continue their good work, so that those counties not represented by an association will soon see the necessity of such an institution, and in due time bring their best men to the knowledge of the profession at large.

It must be a source of gratification to hear that something in form of a petition to Parliament is on the *tapis*, soliciting State aid to provide such a valuable and improving profession with a suitable habitation for its "sages"; wherein to discharge their most important duties to the State, the public, and the profession. It most certainly is no credit to our country, one of the finest agricultural nations in the whole world, that such a miserable, out-of-the-way dwelling-house should be the College of the Veterinary Surgeons of Great Britain and Ireland; and it must be that some palpable negligence has existed with us, in bringing our condition to the light of day, that such has been permitted to continue so long. However, now that our excellent energetic President, with Mr. Fleming, have taken the subject in hand in real earnest, a remedy will speedily follow, and a radical cure be effected.

It was with feelings of great pleasure I observed our Mr. Geo. Williams a candidate for election on the Council, and I sincerely trust he will not despair, but push forward with increased vigour, and head the poll at our next election; then bring his great influence to bear in working for our common good.

I am sure we all believe in fresh blood; and there are many younger men than those at present in the Council, who have extraordinarily long old heads, who could and should take to harness, and relieve those who have done so well, and now require the rest and repose they so well deserve, yet

who would rather die in leather than see their good work take a retrograde course. May these remarks have the desired effect, and arouse those who should come to the front to their duty, or let them take the motto, *Ubi bene, ibi patria.*

Let us away to the banquet. Here we find some forty-four well-known members assembled, who have paid the twenty-three shillings fee for admission; this includes wines. I thought at the time how strange it was we have not a member of Council, also a member of a Temperance Council. Why on earth should a total abstainer on principle be compelled to pay for that which he does not touch, and has, from pure and honest motives, determined to abstain from and discourage? It may be worth the Dinner Committee's consideration on a future occasion to moot the desirability of making a fee for the dinner, and wine ticket separate. Moreover, at these *reunions*, it is numbers we want; and many a good man is deterred because of the great expense, for there is not only the dinner, but rail and hotel expenses. That everything was well served and excellent, no one will deny.

The absence of two of the Principals of the schools in the north was noticed, as well as of many leading metropolitan practitioners. Such apathy is to be deeply regretted; it is only on one day in each year we are expected to put in an appearance in general, and thus to show we have an interest in our *alma mater* other than that of pocket lining.

A few passing observations on topics in after-dinner speeches. The President, in well chosen words, expressed the important position our profession was now holding, and remarked on the new Army Warrant, also anent the Fellowship Examination, that the Council had decided that an educational test should be passed, under their supervision, and conducted by a delegate from the College of Preceptors—the subjects of examination to be arranged from time to time by the Council, demanding from the candidate the education of a country gentleman. This test is most important and is most potent, and all who have the well-being of the profession at heart, will join in expressions of decided approval; but to ask a member of some years' standing to undergo an examination equal to a B.A. or graduate in arts, would, I opine, make the Fellowship degree to them an unattainable object. Therefore, a modified examination will test a man sufficiently to know if he be a gentleman; for I take it that a gentleman may be defined as "a man of unimpeachable honour and gallantry, of dignified carriage, spotless reputation, a high mind, liberal views, and a *goodly education.*"

Therefore, if such be the standard, the Fellows may be trusted to keep up the good work entrusted to their charge. By-the-way, I cannot understand why a Fellowship candidate only should be subject to a preliminary examination on education, if he fail to produce the educational certificate. Why should not a candidate for membership also be subject to the same ordeal? I do not mean such a severe test, but certainly a test. I may be told the schools do this. I then ask by what authority? I fail to see why the legal examining body should not sign the student's educational certificate themselves, and if they choose pass the higher examination for admission to Fellowship examination in due course.

I could not assent to Professor Simonds' remarks about pupils being left more to their own resources. It is to be feared they have had rather too much indulgence of this nature; the young mind is mould d by the preceptor's demeanour and deportment; the young watch their tutor in all his words, works, and actions, and unless highly educated and gifted, become copyists—indeed, I fear this is in general the case with ou students. Therefore, they cannot be too much under the tuition and com-

mand of a good disciplinarian. I am aware of the marked difference between the natural and artificial system of education, but must remember—

"Naturam expelles furca, tamen usque recurret,
Et mala perrumpet furtim fastidia victrix,"

or thus :—

"You may crush, or endeavour to crush, all that is natural, but nature will be nature still, and by slow but sure degrees will eventually and victoriously break through all conventional absurdities."

Much and great credit is due to our professors for the wonderful results of their labour ; in no other scientific and liberal profession could such success be achieved—I allude to the class of students who frequently enter on their studies, and the labour needed to work them up to pass the final examination: men in middle, or past middle life, who have been in many trades and vocations, and even in no kind of occupation whatever, may have passed the bloom of youth in the ranks of our army ; then by chance drifted into our profession.

The army regulation limits the age of veterinary surgeons entering to twenty-six years, and it is to be hoped our schools will make a similar limit. Surely the choice of such a noble calling should be made at that age when instruction of the true and valuable kind can only be received. However much the school authorities may disapprove of articled pupilage, I am clearly certain it is the only way to make "practitioners," in the strict meaning of the term. The school tuition must be toned with that practical scientific manipulation only to be obtained in the broad field of practice and observation, under an experienced surgeon's guidance. Others may object, but I am firm ; I have had the newly-fledged *rara avis* "on the *see* your practice system"—hence the data ; and I do think it will be advisable to attend to this subject ere we go in for the Penal Clause, for many experienced, well-informed agriculturists will speak on the subject.

Lastly, it is to be hoped that all differences existing between the Royal College of Veterinary Surgeons and the Highland and Agricultural Society will be adjusted under the courteous influence of our President ; so that we all may become one flock under one shepherd, and extend the hand to each other in brotherly sympathy and union. Then the time will arrive when the Penal Clause will not prove such a hard nut to crack after all.

Trusting our next meeting will find us nearer the consummation of those things imperative to our welfare,

I am, sir, yours obediently,
"ARTEMUS SECUNDUS."

P.S.—The legality of a member of Council of a Body Corporate being also a paid officer of the institution, has often struck me ; at all events, if legal, is it just and independent? Moreover, the duties of a secretary are so arduous—— I was about to say more, but refrain.

CONTAGIOUS PLEURO-PNEUMONIA.

To the Editor of the VETERINARY JOURNAL.

SIR,—In reply to a letter from Mr. Beddard in your journal of this month, relative to some remarks I made at the meeting of the Lancashire Veterinary Medical Association, I beg to state that the said remarks were based on information I received soon after the slaughter of the cow in question, and regarding which, until Mr. Beddard's letter appeared in your journal, I had not been undeceived.

I am glad Mr. Beddard has given us the true facts of the case, and pleased to hear that he was not held responsible for his error.

Respecting, however, the remarks complained of, I may, in justice to myself, observe that I am made to say exactly the reverse of what I did, in stating that I had erred and should have to pay, or that my opinion was confirmed by the third veterinary surgeon. The boot was just on the opposite leg : Mr. Beddard being the inspector, *he* had to declare the nature of the disease ; I only acted as veterinary adviser to the Corporation Farm Committee. Further, you will recollect I complained to you personally that my speech had been mis-reported, and was calculated to convey a wrong impression. Had the two words in brackets ("the speaker") been omitted, that sentence and the following one would have read correctly.

Mr. Beddard says rightly, that after seeing the lungs I still maintained there were indications of the disease. I did so, and I am still of opinion that it was a case of Pleuro-pneumonia in its congestive stage. The portion of wire had held a harmless position for a long period. No inflammatory action of recent date was apparent anywhere around it ; and I do not for a moment believe it had anything whatever to do with the increased respiratory murmur and the other lung symptoms manifested. Regarding the nature of the case, however, Mr. Beddard and Mr. Pritchard thought differently. Nevertheless, we each enjoy our own opinion, with full liberty to express the same.

Yours obediently,

Wolverhampton, *May 13th.* J. WOODROFFE HILL, F.R.C.V.S.

CONTAGIOUS PLEURO-PNEUMONIA, AND CHRONIC TUBERCULOSIS.

To the Editor of the VETERINARY JOURNAL.

SIR,—Referring to the above diseases in cattle, I know there is a very great difference in the *post-mortem* appearances of the two, when the one is not complicated with the other ; but I would like to know what are the appearances (*post-mortem*) of Zymotic Pleuro-pneumonia in a case of Chronic Tuberculosis. Well, I have no doubt but the answer will be, that the autopsy of a case of Contagious Pleuro-pneumonia will be the same in all cases, only different in degree.

Suppose a pair of lungs thoroughly diseased with Chronic Tubercle ; is it possible for them to resist the specific action of the Contagious Pleuro-pneumonia blood poison? I believe not ; and so far as my experience goes, it is a very difficult matter to say that lungs affected with Chronic Tuberculosis are altogether free from Contagious Pleuro-pneumonia. I have seen lungs of old dairy cows so thoroughly diseased with Tuberculosis, as to completely alter the appearance of their whole structure. I have also seen cows affected with Tuberculosis for at least two years, and Contagious Pleuro-pneumonia break out amongst the stock, and the cows affected with Chronic Tuberculosis succumb to Zymotic Pleuro-pneumonia ; and on a *post-mortem* examination, if I had not seen the animals when alive, I would have been inclined to say that it was only Tuberculosis after all, and nothing more. I consider it a right provision that is at present in force, for inspectors to see all animals affected with Contagious Pleuro-pneumonia *alive* before they can put the act of 1869 into operation ; it gives them far greater facilities for making out the exact nature of the disease. If the owners of animals had the privilege of slaughtering before reporting to the inspector, there would

be no end of discussion as to what was, or what was not the disease. I only wish that all the able veterinarians had been placed in the same position (those connected with the recent trial). I am inclined to think there might have been a possibility of their being more unanimous. I have no doubt but that all the Professors who had anything to do with the case in question are equally capable of diagnosing between the two diseases in the living animal, and as competent in examining the lungs of the dead; and yet they came to different conclusions. It looks to me somewhat strange; and yet there have been far greater mistakes committed by as eminent men. The majority of veterinarians (in ordinary cases of either disease) are expert enough at detecting disease of the lungs of cattle, and also at inspecting them after death; but I think none have reached that stage of perfection in diagnosing the condition of the living, or inspecting the carcase of the dead, but that they may fall into error. If the specific blood-poison of Zymotic Pleuro-pneumonia (whatever it is) could be detected and analysed as some mineral substances are, or if by the aid of the microscope the so-called poison could be isolated and examined, then I would say that men of science really had substantial evidence in asserting that this lung was clear, and that one was impregnated with a specific blood-poison. It is fully admitted that a virus can pervade the system of an animal for three months, and nothing can be detected for some time but an increase of temperature. Have the animal at this stage destroyed, and examine the lungs; nothing will be seen abnormal. Take an animal that is known to have the poison in the blood, and has a temperature of 103°, with the hair standing erect, the appetite not so keen, and perhaps the milk decreasing in quantity,- the skin at the same time becoming a little hard and unpliant over the ribs. This animal is suspicious; in fact, we know that she is diseased; but as we have just found her at this stage, will the *post-mortem* corroborate our diagnosis? I am very doubtful, if we call in a stranger in these circumstances, and point out the lungs, whether he will not say there is no appearance of Contagious Pleuro-pneumonia.

So my opinion is that veterinarians would all do well to be exceedingly cautious in giving their opinion; for in many such cases it can only amount to an opinion. It is true, veterinary surgeons will not often be placed in such a position, as in most cases a few days will be allowed to pass before one is compelled to give a decided verdict. But it has happened, and will happen again, that one is put off his guard, and landed in an awkward position by obstreperous clients; and then round comes the old adage "When doctors differ who shall decide?" which is used by the public whenever an opportunity occurs, and is always more or less detrimental to the standing of the profession. But we are ourselves for the greater part to blame; we are all getting so impregnated with knowledge that one professional gentleman thinks it clever to outstrip his brother; and this is all the more evident in a court of law. I do not at present remember a case of veterinary jurisprudence in which a number of veterinary surgeons were examined, where one party did not swear one way and another party the very opposite. Well, is this too much knowledge for the one, and too little for the other, or do men not swear to the standard of light that is in them? For my part, I will not attempt to decide; but the fact has been, is, and I have no doubt will be again, about matters concerning which one would think there could not be two ways. However, in returning more to the point, I would again ask, what has a veterinary inspector to rely upon in diagnosing the two diseases in question? In both diseases the lungs are altered in structure; yet they are two distinct diseases, and in most cases not at all difficult to make out. At first sight, both are suspicious in general appearance. I have no doubt many would say that auscultation will at once decide; but by auscultating and

percussing, I have in many cases been unable to convince myself as to the existence of one or other disease: there are so many sounds common to diseases; the cough and respiration, no doubt, are different; the heart's action is also at times different, and many other minor symptoms are not alike in both diseases. But, after all, in examining a cow standing in a shed where Contagious Pleuro-pneumonia has been—say some months before—I could not satisfy myself without the use of the thermometer; for I have always found that in cases of Contagious Pleuro-pneumonia, the temperature is increased generally to about 105°, and in some cases as high as 107°. In no case of Chronic Tuberculosis, pure and simple, have I found it above 102°. It might be different in town dairies; but as to that I have had no practical experience.

Let veterinary inspectors be ever so expert in diagnosing disease in the lungs of cattle, my opinion is that it should be made compulsory for them to use the thermometer in all suspicious or suspected cases; for I am convinced by my own observations, that with the use of the instrument disease can be detected earlier and with more certainty. Without its use we lose one very important indication; when we find the temperature of an animal so high as 104° or 105°, combined with other symptoms—such as rigors, hair erect, loss of appetite, with an occasional hard dry cough, and in milk cows the milk secretion diminished, and pressure on the spine or over the intercostal spaces causing the animal to grunt or moan, while the nasal cartilages are working spasmodically at each inspiration; and then combining these with auscultatory sounds—such as friction sounds, crepitations, ronchus, sibilus, with perhaps increased respiratory murmur louder than natural in one lung, and less distinct in the other,—I think any one finding these symptoms present could not be censured for condemning the animal as affected with Contagious Pleuro-pneumonia. And yet it is questionable if all these symptoms could not be observed in a case of Sporadic Pleuro-pneumonia.

I consider that no hard-and-fast line should be drawn with veterinary inspectors, if the lungs of an animal are so diseased as to alter their structure, or if an animal is destroyed in the first stage of Contagious Pleuro-pneumonia, when there is no characteristic lesion to indicate that the animal had been affected with contagious lung disease.

Hoping I have not trangressed too far upon your readers' patience, and that you will find a place for these remarks in your next issue.

Believe me to be,

Yours faithfully,

"PNEUMONIA."

TYPHOID FEVER AT EAGLEY.

To the Editor of the VETERINARY JOURNAL.

SIR,—In the *Veterinary Journal* for May, Mr. Robinson, Medical Officer of Health for Turton, and his son, in a letter on this subject, are surprised "I should use as authoritative the *ex-parte* reports of any newspaper I may take up." The brief allusion to the matter in my address last February, was based principally upon knowledge I gained from a paper read before our Association in 1876 by those interested in the case, and not any *ex-parte* newspaper report; and instead of ignoring the medical report to the Local Board of Health, I beg to inform them that I have a *verbatim* copy both of that and the certificates given by the veterinary surgeons, which after carefully reading in February last, and again now, clearly prove to be true, to my mind, what I stated in my address. But no doubt those more closely

connected with the facts, and who are able to judge from personal knowledge, will have something to say in vindication of their own honour.

The above-named gentlemen also accuse me of casting "disparaging remarks on the medical profession in general, and by inference on them in particular. I should be exceedingly sorry to say anything to wound the feelings of the medical profession, but I feel sure it is not so foolishly sensitive as to take umbrage at my saying "they possess but little knowledge of the diseases of animals."

Messrs. Robinson are entire strangers to me, and I have not the slightest personal feeling in the matter; but I must confess that I still think they did not certainly soar above their fellows in the knowledge they displayed of the maladies of animals, notwithstanding the assertion in their letter that Mr. Robinson had been accustomed to cows all his life.

Apoligising for troubling you with matters that I fear will not prove very beneficial to any—either reader or writer—I will conclude with the wish expressed last February, though not reported: "That the veterinary profession will always acknowledge the debt it owes to the medical world for its fostering care of a younger brother, and that common aims and ambitions may bind and cement us with a firmness that shall defy the powers of any individual to sever."

I beg to remain, yours, etc.,

T. HOPKIN, F.R.C.V.S.

Manchester, *May 17th*, 1878.

[We have received letters from T. Greaves, T. Taylor, and S. Locke, as well as testimony in proof of the statements made by them in reference to this matter, but pressure on our space compels us to hold them over until next month.—ED. *V. J.*]

THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND AND ITS VETERINARY CERTIFICATES.

To the Editor of the VETERINARY JOURNAL.

SIR,—I am perfectly certain that every member of the veterinary profession will agree with the opinion expressed by Mr. Lambert, 17th Lancers, in his letter which appears in the May issue of the *Veterinary Journal*, to the effect that the Highland and Agricultural Society, by continuing to grant certificates in veterinary medicine and surgery, is not only acting in opposition to the general feeling and interests of the entire body of the profession, but is doing its utmost to foster spurious titles. Among the graduates of the Scotch schools who hold the certificate, and are members of the Royal College of Veterinary Surgeons, the opinion is universal and strong that this Agricultural Society is doing a wrong in granting this certificate, and claiming for its possessor the title of Veterinary Surgeon. Nowhere is a justification for this course to be found, and the assumption or conferring of the title is distinctly illegal. That it is not recognised as legal or efficient, is evidenced frequently in courts of law, in the Contagious Diseases (Animals) Act now before Parliament, as well as in the new Army Warrant just issued, in which none but those who have received the diploma of the Royal College of Veterinary Surgeons are recognised as duly qualified, and will be accepted. Surely if the Society is not altogether blinded by prejudice, or misled by one or two unscrupulous individuals, it must see that it is not only acting wrongly and prejudicially towards the entire body of the veterinary profession, but is bring-

ing disgrace upon itself by continuing to act as it does in this respect. It is no more qualified, and has no more right to interfere with veterinary teaching or qualifications, than any other Agricultural Society in the three kingdoms. That some of its supporters feel this, is apparent from the way in which they seek to influence opinion in Scotland by persistently attempting to mislead the public in alluding to the Royal College of Veterinary Surgeons as the Royal Veterinary College—thus making the question one of rival schools, instead of (as it really is) the entire body of the veterinary profession and its legal rights, and the Highland and Agricultural Society and its spurious veterinary title. We find not only the *North British Agriculturist* adopting this discreditable *ruse*, but also men connected with the Highland Society.

The fact is, sir, that these spurious claims to the title of veterinary surgeon are every year becoming less sought for, as the reports of the Society's examination for this Session amply show; and perhaps no students would apply for them at all, were there not certain influences in operation which one would scarcely expect. The few students who go up for the certificate are from two rival schools in Edinburgh, presided over by members of the Royal College who should have every reason to act loyally to their profession, and discountenance whatever may tend to its injury. But it is to be feared that the miserable rivalry which two schools of this description in the same city engenders, and the consequent competition for the favour and patronage of the Society, are stronger than the loyalty and devotion which we often hear of in that quarter. The profession owes a deep debt of gratitude to Professor McCall, of the Glasgow College, who stands faithfully by the body corporate, and does not allow his students to lend their countenance to a system which now does nothing but harm. And what shall we say of the two members of the profession who yearly attend the examinations for the certificates, and exert themselves to perpetuate what is so hurtful and obnoxious to their colleagues! Surely, if they have any professional *esprit*, they must feel that they are playing a most reprehensible part, and are pursuing a line of conduct which will bring them no satisfaction or credit in the future.

The continuance of the certificate system, and the assumption of spurious titles, depends, in my opinion, upon four men: the Principals of the rival Schools in Edinburgh, and the two Manchester members of the profession who act as examiners for these certificates. Let these men act loyally towards their brethren and to their profession, and the wrong that now exists would be at once abolished. Then we could soon rid ourselves of impostors, and benefit the public, while forwarding our own interests as a united body.

The Highland Society can largely assist in promoting veterinary science, and we trust that, when it suppresses its certificate, it will continue so to do. At present it is assuming a function for which it is not competent, which is entirely unnecessary and illegal, and which is continued in opposition to the wishes and interests of a profession that is every year becoming more influential and competent to manage its own affairs, and resent hurtful interference.

With regard to holders of the Society's certificates only, I have not a word to say against their abilities. For many years I held nothing but the certificate, I am sorry to confess; but I soon learned that it did not give a *legal claim* to the title of "Veterinary Surgeon." As I did not care to sail under false colours, and was, moreover, convinced that no good could come of sanctioning the issue of certificates, or having two bodies granting licences to practise veterinary medicine, when one was quite sufficient, I put the Society's document in the fire, became legally qualified, and have had every reason to congratulate myself on having done so. The Royal College of Veterinary

Surgeons is the only portal through which members of the profession should and must pass. It is *the* profession itself, and all improvement, all progress, can only be effected by it. Every member has a voice in its management and control over its actions, and it recognises no one school more than another; it exists for the profession, as well as for all the schools.

Apologising for writing at such length, which nothing but the importance of the subject could warrant,

I remain, yours obediently,

A "VETERINARY SURGEON" AND AGRICULTURIST.

ERRATUM.

In the report of the Examinations of the Students from the Royal Veterinary College in April last, the gentleman who passed his Examination with VERY GREAT CREDIT was Mr. John Richard Carless, of Stoke-upon-Trent,.and not Mr. W. A. Hancock, as reported in the last issue of the *Veterinary Journal.*

TO CONTRIBUTORS.

WE cannot undertake to publish, as ORIGINAL COMMUNICATIONS, papers which are intended to appear simultaneously in other journals. The reason for this course is obvious, and in adopting it we are only conforming to the rule observed in all high-class publications.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from J. W. Hill, Wolverhampton; G. Evans, Royal Artillery, Sealkote; W. Osler, M.D., Montreal; "Pneumonia"; W. A. Taylor, Manchester; J. Ritchie, Kincaldrum, Forfar; "French Veterinary Student"; A. Spreull, Dundee; A. L. Gibson, Birmingham; "Veterinary Surgeon and Agriculturist"; Professor Walley, Edinburgh; "An English Veterinary Student"; W. F. Barrett, Hereford; "Artemus Secundus"; W. H. Coates, London; T. Hopkin, Manchester; Professor Williams, Edinburgh; Professor M'Call, Glasgow.

BOOKS: Annual Report of the Veterinary Department of the Privy Council; *Carsten Harms,* Das Milchfieber des Rindes; Announcement of the Montreal Veterinary College; Referat betreffend die Verbreitung der Ansteckenden Thierkrankheiten im IV. Quartal 1877; *E. Klein, M.D.,* Experimental Contribution to the Etiology of Infectious Diseases; Cassell's Natural History; *Lanzillotti-Buonsanti e G. Pini,* Dizionario dei Termini, etc., delle Scienze Mediche e Veterinarie.

JOURNALS: *Edinburgh Medical Journal; American Veterinary Review; Animal World; North British Agriculturist; Mark Lane Express; Farmer; Agricultural Gazette; Recueil de Méd. Vétérinaire; Annales de Méd. Vétérinaire; Revue Vétérinaire; Live Stock Journal; Archivio di Medicina Veterinaria; Wochenschrift für Thierheilkunde und Viehzucht; Medical Press and Circular; National Live Stock Journal; Lancet; Medical Times and Gazette; Archives Vétérinaires; Journal of National Agricultural Society of Victoria; Der Thierarzt.*

NEWSPAPERS: *New York Spirit of the Times* (five copies); *Toronto Leader; Turf, Field, and Farm* (two copies); *Scotsman; Edinburgh Courant; Ottawa Daily Citizen; Teesdale Mercury; Glasgow Courier.*

All Communications, Books for Review, Advertisements, etc., must be addressed to the Publisher, 20, King William Street, Strand, W.C.

Morbid Specimens are to be forwarded addressed to the Editor, "Veterinary Journal" Brown Institution, Wandsworth Road, London.

Communications must be accompanied by the name of the writer, whether he may desire to have it published or not. Anonymous letters and articles cannot be inserted. The Editor does not hold himself identified with the views or opinions expressed by Contributors. Communications for insertion in the next number must arrive on or before the 15th of the present month.